PRACTICES OF TWO EXPERIENTIAL TEACHERS IN SECONDARY PUBLIC SCHOOLS IN AN ERA OF ACCOUNTABILITY

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DEDICATION

To my parents, Eric and Darlene Jonas, who give me the strength and the courage to follow my own path.

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PRACTICES OF TWO EXPERIENTIAL TEACHERS IN SECONDARY PUBLIC SCHOOLS IN AN ERA OF ACCOUNTABILITY

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It is well documented that the pressures of accountability and standardization have impacted public school teachers and their teaching practices (Imig & Imig, 2006; McCloskey and McMunn, 2000; Sacks, 1999). The pressure to conform to the mandates of high stakes testing has had a narrowing effect on teachers' praxis (Wills & Sandholtz, 2009; Mustafa & Cullingsford, 2008; Llewellyn, 2005). This study explored how two high school teachers, who use experiential methodology as the foundation of their teaching, describe and enact their teaching practices in the context of a public school system that emphasizes accountability. With research indicating that experiential teaching can positively impact student growth and academic achievement (Ives & Obenchain, 2006; Powell & Wells, 2002; Scales et al., 2006; Murphy, 2009) this study sought to uncover the factors, both in schools and within teachers, that support or challenge a teacher's ability to implement an experiential practice within this context.

The teaching experience of two high school teachers was explored over an eight month period through in-depth interviews, focused observations, interviews of students and an examination of classroom documents generated by the teachers and their students.

As a phenomenological study, the research focused on gaining an in-depth understanding of the experiences of these teachers and to explore the factors (in school and in the teacher) support or hinder their ability to maintain an experiential praxis. The analysis of data indicate the following central themes that support an experiential practice within this context: 1) teachers who have had significant career experiences outside of classroom teaching 2) teachers who have a strong command of content but whose practice emphasizes student learning and growth rather than content 3) a teacher's willingness to significantly extend their availability to students beyond standard classroom time and 4) support from school administration and support from other colleagues within the school setting. The following factors emerged as ones that challenge the implementation of an experiential praxis within this context: 1) pressures from high-stakes testing demands on student performance and in turn teacher evaluation 2) pressures of pacing from state curriculum standards that are narrow and extensive 3) conflicting expectations from students who are "grade-oriented" rather than "learning oriented" and 4) teacher fatigue.

CHAPTER ONE: INTRODUCTION

The Thinkatorium: An Example of Experiential Teaching

As I approach Mr. Brigham's high school physics class I am met by a small white sign tacked above his classroom door. It reads: "*Enter this Thinkatorium all who are in search of true knowledge. Leave behind your concern for grades and other artificial representations of knowledge."* Mr. Brigham's 32 juniors and seniors sit in neat rows of desks in the middle of the room or on stools at long black lab tables framing the exterior walls of this brightly lit classroom. Mr. Brigham stands at the front of the class and in a booming voice begins class: "What questions do you have?" A senior seated at the far lab table calls out, "Yesterday I saw an ambulance with its lights on but didn't hear the siren until it was closer. Was it traveling faster than the speed of sound?" Another student inquires, "Would there be a sonic boom in space?" And another student wonders out loud, "Will a C-130 create a sonic boom?" As the questions are fired from the floor, Mr. Brigham listens carefully and then answers some of the questions directly. Other questions he throws back to the students to consider and puzzle out. The room is a buzz of excitement as students call out their questions; some seemingly random questions and others directly related to concepts that were recently covered in class. All of them, at least tangentially, related to Physics and all of them posed with enthusiasm. After fifteen minutes, Mr. Brigham offers up a shrill whistle and then, "Okay, let's find some focus!" The class settles down and within a minute all eyes are on the front of the classroom. Without warning, Mr. Brigham is now rotating a small wooden stopper, attached to a long piece of string, just above the students' heads. "Whoa!"one student calls out. The students in the middle rows duck their heads to avoid being hit as the stopper rotates

above. Mr. Brigham asks, “If you cut the string, what happens to the stopper?” Students observe, inquire and offer their ideas. He slows the rotation and the stopper bounces off one student’s back and comes to a halt. Mr. Brigham has written an illustration of a rotation on the board, a representation of something like what they have just observed. Pointing now to the illustration, he merely says, “Tell me everything you can about this rotation based on the information you have.” Students quickly go to work with pencils down or in animated conversation with other students around them. As Mr. Brigham wanders around the room listening and observing, one girl murmurs, “I can’t do this.” Mr. Brigham quickly comes to her side and responds, “I can’t do this yet! Let’s work on this problem together. You’re so much closer than you think.”

After twenty minutes of observing and listening to students deeply engaged with this question, Mr. Brigham moves to the front of the class. Releasing another short shrill whistle, he starts in: “We’re missing one piece of rotational systems. We need to know the force that causes the start of a rotation. What do you have to do to get a rotation started?” Students offer a few suggestions, others looked confused. He tries a different question: “What do you think the equation for torque is?” and another question, “In what direction does a force point?” The students sit pondering and a few venture a guess. Suddenly Mr. Brigham is in motion again. His hands sweep the air motioning across the middle of the classroom: “All of these desks have to go! Clearly you need an illustration.” Without hesitation all students are up and maneuvering their desks to the far edges of the classroom. He continues, “All desks should be moved. Depending on how intense this is going to be, probably none of you should be seated!” A hum of anticipation is in the air, there’s some audible giggling and lots of wide-eyed attention.

Mr. Brigham is now at the back of the classroom holding a bowling ball attached to a long chain that is threaded through a PVC pipe that serves as a handle. He requests two class volunteers. The other students jostle and arrange themselves, sitting or standing on top of the lab tables in order to get the best possible view. One student, upon seeing the bowling ball cries out, "Oh God!" and another student proclaims, "It's a wrecking ball!" Mr. Brigham moves the two volunteers to the center of the room. Before asking the volunteers to do anything, he inquires to all the students, "What do you think is going to happen?"

Rationale for Study

> *I hear and I forget. I see and I remember. I do and I understand.*
> - Confucious (n.d.)

More than 2,000 years ago, Confucious understood that learning by doing was perhaps the most effective way to learn. Philosophers and educators, before and since, have continually sought to understand and describe the nature of human learning. They seek the answers to many questions including: What are the most effective approaches to learning? What are the roles of the teacher? What are the roles of the learner? In his book, *Experience and Education* (1938), philosopher, John Dewey asserted his influential theory that placed experience as the critical center piece of teaching and learning. Learning by doing appears to be a simple prescription and one that, on the surface, would be agreeable to all schools and teachers. However, in reality, the picture is not so simple. Public school curriculum and teaching in the United States has, more often than not, followed a more traditional prescription.

Over the last 100 years, public schools in the United States have been the battle ground between essentialist and progressive philosophies (Imig & Imig, 2006; Pogrow,

2006; Ackerman, 2003). Essentialists argue that the principal purpose of formal education is to convey and maintain the basic elements (or essentials) of our human culture (Gutek, 1988). Essentialists believe that content is the focal point and that teachers should be leading whole classes of students toward results that can be measurable (Imig & Imig, 2006). Juxtapose this understanding of the role of education with progressives' stated ideals of a focus on the child at the center, an emphasis on direct experience and the encouragement of cooperative learning activities. The great distinction between these two philosophies boils down to the progressive view that the child is at the center of the learning in contrast with the essentialist understanding that the subject matter resides at the center of all learning (Gutek, 1988). While the battle ground between these two philosophies is still alive and well, public school policies and practices have tended to more closely align with an essentialist, or traditional, viewpoint over this 100 year time period (Imig & Imig, 2006).

The tendency of public school teachers toward a more traditional teaching practice can be attributed, at least in some measure, to the pressures of standardization and accountability that teachers experience in the American public school system (Ives and Obenchain, 2006). Imig and Imig (2006) assert that essentialists have long held the control of public schooling in the United States through the influence of those who make school policy: "Progressives, from John Dewey to John Goodlad have always been on the outside attempting to recast the role of schooling and to expand the definition of quality teaching and teacher effectiveness" (Imig & Imig, 2006, p. 168). The mandates of No Child Left Behind (2001) are indicative of the sway of essentialist thinkers on policy decisions in public schools and thereby on the practice of classroom teachers. Pogrow

(2006) describes progressive periods as times when education is “awash in new interesting ideas” and traditional periods as times that see rising test scores, at least for the short-term. This tension between essentialist and progressive ideals forces teachers to walk a balancing act. While essentialist approaches to teaching and learning are more prominent in public schools today, what would be considered more progressive methodologies and curriculum have, at different time periods over the last century, held a more prominent position in American public schooling (Mondale & Patton, 2001; Kraft, 1995).

Experiential teaching, or teaching through experience, has played an influential role in educational theory and application over the last century. Experiential teaching is considered one form of a progressive approach to teaching and learning. While at times, progressive strategies, such as experiential teaching, have been at the forefront of public school reform and professional practice, most recently, the pressures of accountability have moved it out of mainstream practice (Imig & Imig, 2006; McCloskey and McMunn, 2000; Sacks, 1999). The relatively recent increased emphasis on accountability, and with it the concurrent pressures for schools to perform well on state and national tests, have forced teachers to make difficult decisions about their teaching practices. With the pressures of standardized testing, teachers working in public schools perhaps experience the pressures of high-stakes testing too greatly to be able to teach in a non-traditional manner (Wills and Sandholtz, 2009).

There is a significant body of literature supporting experiential teaching as an effective practice for positively influencing a wide variety of vital skills and knowledge. This vital knowledge and skill-set are included, by professional educators and public

schools, as important 21st century skills for students to find success in a new global economy (Partnership for 21st Century Skills). Ives and Obenchain (2006) demonstrate that experiential practices can enhance students' higher order thinking skills when compared to results from more traditional teaching approaches. Their research indicates that student-directed curriculum and problem solving (components of an experiential practice) result in students with stronger higher order thinking skills. Experiential-based lessons have been shown to help students effectively meet state-level content standards and learning objectives (Powell & Wells, 2002). And authentic learning tasks, an integral part of an experiential practice, prepare students to be competitive in the global marketplace (Murphy, 2009). Service – learning, grounded in experiential philosophy, has been shown to positively influence student engagement and student achievement (Scales et al, 2006) as well as positively contribute to students' civic and social development (Waldstien and Reiher, 2001). Perhaps even more promising, service-learning experiences have been shown to correlate with a reduced achievement gap for students of low socioeconomic status (Scales et al, 2006). Experiential teaching has also been effective for increasing cross-cultural understanding and promoting students' appreciation of diversity; thereby improving school climate (Roaten & Schmidt, 2009). Even with this evidence indicating experiential education's potential for effectively addressing 21st century learning objectives, teachers are experiencing tremendous pressures of accountability that run counter to teaching in this manner. Secondary teachers who are teaching in tested core subjects are at risk of being pressured by these mounting accountability demands.

It is unclear how a secondary teacher could continue to subscribe to experiential teaching practices in the midst of this sort of pressure. Most students in the United States are educated in public schools and are therefore taught by teachers experiencing the pressure to conform to the demands of standardized testing. With research indicating that experiential teaching is an effective practice for meeting 21st century learning objectives (as well as many other critical skills), this is an important study to undertake. Discovering how a public school teacher can continue to teach experientially, even in the midst of a system under strong accountability pressures, is of significant value to the vast number of students receiving their education in public schools. Uncovering the factors involved in supporting or hindering a teacher's decision to teach experientially is important for developing a new understanding about this important problem.

Purpose of Study

The purpose of this study was to explore how high school teachers who use experiential methodology as the foundation of their teaching describe and enact their teaching practices in the context of a public school system that emphasizes accountability. I focused my research on two high school teachers selected for this study because they demonstrate an experiential teaching practix in public high schools in western North Carolina. I used an in-depth case study approach to explore my research questions which were:

- How do experiential teachers, teaching in secondary public school classrooms, describe and enact their experiential teaching practices in the context of a school system with a heavy emphasis on accountability?

- In what ways do these teachers describe and demonstrate the implementation of experiential teaching as compatible or incompatible with high stakes testing?
- How have accountability demands affected the experiential teaching practices of those who subscribe to this practice as the foundation of their teaching?
- What specific factors influence these teachers' ability to maintain an experiential teaching practice as a foundation of their teaching practice?

Theoretical Framework

The theoretical framework for this study is illustrated in Figure 1 (see Appendix A). As can be seen in Figure 1, my study focused on exploring experiential teaching in the context of accountability. The experiential component of the study was grounded through the use of John Dewey's foundational work (Dewey, 1938), David Kolb's definition of an experiential learning model (Kolb, 1984; Kolb, Boyatis & Mainemelis, 1999) and the more recent work by the Association for Experiential Education (Association for Experiential Education, 2011, "The Principles of Experiential Education") to offer a clear definition of experiential education and a checklist of experiential practices. The context of accountability was also an overarching framework for the study. The literature describes how accountability pressures influence teacher practice in general, and my study sought to explore how experiential teaching practice, more specifically, is affected in the context of strong accountability pressures.

The teaching practices of two secondary school teachers who self-identify as experiential teachers were the central focus of this study. I determined that an enthnographic case study of two high school teachers would provide the best opportunity to explore this problem in depth. I explored these teachers' teaching practices through

focused interviews, observations, interviews with their students and an examination of documents produced by both the teachers and the students in the classroom. From these data sources, I sought to understand how these two teachers described and enacted their teaching practice in a public school classroom over a 6-month period. I sought to uncover the "teacher" factors (personal to the individual teachers in the study) and the "school" factors (relative to the particular school, larger district or system as a whole) involved with supporting or challenging the teachers to maintain an experiential practice. As seen in Figure 1, a teacher's beliefs about students and learning is used as a lens for exploring the personal "teacher" factors. Michael Fullan's research (2000) and Linda Darling-Hammond's work (2004) on school factors that support innovative teaching practice also provide a lens for exploring the school factors that these two teachers associate with supporting an experiential practice. Additionally, I investigated how teacher factors and school factors may intersect or relate to one another with regard to implementing an experiential teaching practice.

Formative Influences

I embarked on this study with the recognition that the questions I asked as well as the way in which I interpreted the "answers" are informed by my personal experiences and perspectives. With this in mind, I sought to understand clearly the foundation from which my own teaching stems and to use this foundation as a form of strength rather than a binding limitation of this study. I sought to bracket my biases through starting with a clear sense of my own background in experiential education. Two experiences from my first years as a beginning teacher illustrate how my personal philosophy of teaching and learning was formed and how this unique perspective led me to this study. My first job

out of college was working as an Instructor for Outward Bound. I had the opportunity to work on an innovative program, the Summer Scholarship Program that combined Outward Bound's wilderness programming with a focus on academic skills for students from South Bronx, New York. The following section begins with an essay written by one of my students in 1992 as part of this program. At the end of the program each summer, Outward Bound would publish the students' essays as well as photos of the program into a small bound book.

> Story one: South Bronx High School meets the North Carolina mountains.
>
> In New York I just play and hear some music. In North Carolina I do so many things that I learn a lot in this country. Here I clean the bathroom and sometimes I clean the classroom. Sometimes we have to hike with the backpack and take our camping gear. When we hike, we have to make breakfast, cook our lunch, cook our own dinner and clean up. Sometimes we have a lot of fun because we go to the town and we play volleyball and basketball but most of the time we spend writing. If I was in New York I would be buying some clothes, eating food and hanging out with my friends. We learn so many things that I'm proud to be here in North Carolina. It is better to stay here in the jungle because we have fresh air and a good meal that doesn't make you fat. (Lopez, 1992, p. 42)

Nearly twenty years ago Henry Lopez wrote this descriptive essay about his summer in the mountains of North Carolina. I remember the many hours Henry and I spent stooped over a picnic table, surrounded by the Pisgah National Forest, deliberating over each word. A bilingual dictionary at the ready, the slow and tedious work of pulling out each word to accurately describe Henry's feelings and experiences, then editing and correcting

(Henry cursing at times) and ultimately "publishing" this story and six others on the wall of the mess hall at the Outward Bound base-camp where we spent a summer together. Henry was one of twelve students that summer, all 9th graders from South Bronx High School; all twelve struggling with the English language as new immigrants to the United States and all in danger of dropping out of school. They were sent, each on a full scholarship, to the mountains of North Carolina for a 45-day intensive academic intervention. As my first teaching job, I leaned heavily on my previous Outward Bound training, which placed experience as the foundation and core of all learning. My fellow teachers and I immersed these twelve students in activities such as rock-climbing, whitewater paddling and backcountry backpacking, all with the goal of giving them experiences to serve as a well and a springboard for their writing and self-expression. The results were remarkable. In my four years with the program, students made tremendous gains in their reading and comprehension in just over six weeks with us. Perhaps more importantly, all of my South Bronx students graduated from high school.

Story two: Experience as the basis for an ESL curriculum. Henry and his fellow students from South Bronx High School taught me that engaging students fully in experiences allowed for incredible growth and learning, both personal and academic. I also learned that I love to teach. Following my third summer with this program, I started a masters program at the Harvard Graduate School of Education and as part of this program, I was placed in an inner-city high school in Boston, teaching social studies and English as a Second Language (ESL).

My philosophy of experiential learning was put to the test in this new environment. The students, and the challenges they faced, were familiar but the

environment was not. Could experiential teaching continue to be the core of my practice with four walls surrounding me, the added pressure from administration to ensure that all students were learning and a more prescribed course of study? I struggled mightily that year. The environment surrounding the school also proved to be very distracting – one day a man was shot outside the front steps of the school, the neighborhood was deteriorating around the school and the school itself had lost its accreditation. I pressed on with what I knew worked, engaging students in experiences that allowed for their voice, their perspective and their minds to be at the core of the lessons.

One day after trying to gain the ESL students' attention for what felt like the hundredth time, I decided that I needed to better harness the energy they brought with them to class. I needed to adjust and allow them more of a role in what they were learning. The students in this class were all from Cape Verde (islands off of West Africa) and they spoke a Portuguese Creole. Their culture has a rich oral tradition and they would very excitedly and easily break into elaborate story telling. I asked them to bring their stories from Cape Verde to class the next day because I wanted us to begin recording their stories to make them available for others to read. When they entered the classroom the next day, the lights were off, the tables and chairs were pushed aside. I had placed a small "fire" (made of paper) in the middle of the darkened classroom. In a hushed voice, I asked them to sit in a circle and then I turned on a tape recorder. I handed a microphone to one of the most expressive ones in the group and asked him to start. He invoked a story of "Tia Ganga" (a character much like the trickster Brer Rabbit). The other students were immediately engaged with the story, laughing and adding tidbits to the story as it unfolded. The microphone moved around the circle and students excitedly added more

tales about Tia Ganga. While I understood very little of what was being said, I was overjoyed with the participation of all the students and how seriously they were engaging in the task. Suddenly class-time was over and the students reluctantly switched off the recorder.

This story telling assignment was the kick-off to a complex multi-step process of having the students transcribe and then translate these Cape Verdean stories into English. The students took on this task with a seriousness and intention that I had never seen in them. It required hours and hours of transcribing from the audiotape and then more hours to painstakingly translate the words into English. I contacted a historical society and asked about their interest in this project. Once the students knew that others would be interested in their project, their intensity of focus increased. After transcribing the audio into a written form as a large class, students took home translating assignments and also worked in small groups in class to correctly translate the stories. Their attention to detail and discipline for the task was inspiring. In addition to their enthusiasm, I witnessed them engaging in just the sort of learning they needed to gain strides in English comprehension and writing. The students were at the center of their learning and concurrently gaining the skills and concepts that were prescribed by the state for this ESL course. These Cape Verdean stories, translated to English, were ultimately "published" in a bound book and delivered to the Cape Verdean historians in Boston.

These two stories from my formative years of teaching highlight the significance that experiential education has held in my philosophy about what is central to effective teaching and learning. Given the incredible results I have witnessed in experiential learning environments, I entered this study with a clear bias toward this type of teaching.

Along with this bias, I also have a clear understanding of the challenges facing teachers who want to teach from this framework in public schools. My own struggles with moving an experiential practice from an outdoor setting to the more traditional confines of public school are a part of what makes this study personally significant. My strong conviction that an experiential teaching practice is what makes learning come alive for students of all abilities and backgrounds is a driving force behind this study. This conviction is bolstered by research indicating that experiential teaching can be an effective practice for addressing state curriculum standards (Powell & Wells, 2002) as well as supporting students in gaining skills and knowledge considered vital for the global economy (Partnership for 21st Century Skills). The positive outcomes offered to students and schools, via experiential teaching practices elevates this study beyond one of personal significance to a study that has implications for all educators and schools who seek to reach students of all abilities and backgrounds.

Since my first teaching experiences in the 1990s, I have witnessed public schools increasingly emphasize high stakes testing and accountability. With these mounting pressures, my fear is that progressive teaching practices, such as experiential teaching, are being squeezed out in favor of more traditional teaching practices. I entered this study with a genuine interest in learning how public school teachers maintain an experiential practice in the context of ever-increasing accountability pressures.

Definitions and Key Concepts

The following terms and concepts will be used throughout this paper. Multiple definitions are possible for these terms, but the definition included here is aligned with how the term or concept is used in my study.

- Experiential education (used to describe a teaching and learning process): Experiential education is a philosophy and methodology in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills and clarify values (Association of Experiential Education, *What is experiential education?*). Throughout this paper, the terms *experiential teaching* and *experiential learning* are used at different points depending on the context and topic. These terms, as used, are consistent with the definition of experiential education provided here.
- Student-centered (used to describe a core aspect of experiential teaching and learning): This describes a learning process where the student is at the core of the learning experience. As described by Estes (2004), "…much of the power during the experience resides with the students" (p.144).
- High-Stakes testing: "…the use of scores on achievement tests to make decisions that have important consequences for examinees and others" (Darling-Hammond, 2004 p.1048). "Others" include teachers or principals whose merit pay may be determined by test scores or an entire school that may be rewarded with recognition or threatened with closure, based on student achievement scores.
- Accountability: Used to describe the environment and present era in public schools of using performance data on standardized achievement tests to determine quality of statewide schooling as well as effectiveness of individual districts and schools (Popham, 2005).
- Deep and Rich: Used to describe the understanding and the description sought through this research. The words, deep and rich, are used as adjectives to describe

the complex and multi-layered understanding explored via the research methodology employed in this study.

Delimitations of Study

I made selective decisions with regard to the sampling and methodology of this study. One selected limit to this study was in my decision to not focus on standardized test scores of students in the participants' classes. This intentional decision shifted my research focus to gaining a deep understanding of these teachers' experiences with experiential teaching, rather than emphasizing test score results. My data collection did place an emphasis on how these two teachers approach standardized testing and how these pressures influence their daily teaching practice. I sought to understand their unique perspectives about testing and assessment within a high stakes environment. While interviews did inquire generally about students' performance on standardized tests, the focus of this study was not on those test scores. Using test scores to understand the effectiveness or emphasis of an experiential teaching practice would provide a different picture and understanding but were not the focus of this particular study. However, by choosing to focus instead on the teaching practice (how it was enacted and described by these two teachers), I sought to provide a deep understanding of the phenomenon of experiential teaching in secondary public schools within an era of accountability. Additionally, a selected limit to this study was a decision to focus on teachers in the western North Carolina region due to feasibility.

Limitations of Study

I selected a case study design as appropriate because it made it possible for me to engage in in-depth research in search of new understandings about experiential teaching.

However, there are obvious limitations to selecting just two cases. Generalizing to other teachers in other contexts may not be possible, and the specifics of these two individual teachers become even more significant to the findings (without a larger sample for comparison). The teachers in this study were both male teachers of a similar age, both teaching in the field of science, and with a similar number of years of teaching experience. This provided an interesting opportunity to compare their perspectives and their approach to teaching, but perhaps limits what may be generalized to other teachers from this study. Selecting these two teachers, with a number of important similarities, may be a limiting factor in providing an understanding of the diverse ways that experiential teaching is implemented by a variety of different teachers in public schools. It also may be limited in its understanding of how teachers in other content areas, besides science, are implementing an experiential practice.

Overview of Study

The remainder of the study is divided into four chapters, a bibliography and appendices. Chapter Two outlines important background information to support the rationale for this study. This chapter provides a literature review of relevant research with regard to essentialist versus progressive philosophies in public education as well as research about experiential education and the era of accountability in public schools. Chapter Three details the methodology for the research providing extensive detail about the rationale for and the implementation of data gathering and analysis. Chapter Four offers an in-depth analysis of the two cases by first detailing each case and then asserting key themes that emerged from the data. Pseudonyms are used for the teachers and the schools that are described in this study. Chapter Five provides a reflection on the research

process and the data that resulted and also asserts possible implications and applications for the findings from the research.

CHAPTER TWO: REVIEW OF LITERATURE

Chapter Two provides the context and framework for the questions driving my study. It begins with an overview of the history of experiential education, as a philosophy for understanding the nature of learning but also as a grounding principle for a teaching practice. I provide a definition of the theory of experiential education drawing from (a) John Dewey's theory of experiential learning (Dewey, 1938) (b) David Kolb's experiential learning model (Kolb, 1984; Kolb, Boyatis & Mainemelis, 1999) and (c) AEE's checklist for experiential teaching (Association for Experiential Education, 2011, "The Principles of Experiential Education"). This foundation lays the groundwork for describing experiential teaching practices in public school classrooms. I then describe potential factors within a teacher as well as factors within a school that could support or challenge a teacher to teach from an experiential framework. The chapter highlights the current era of accountability in public schools as the contextual lens for this study. I provide a brief history leading up to the current climate of accountability in public schools and how this escalating emphasis on high stakes testing may be impacting teaching practice. Finally, the chapter ends with a consideration of whether an experiential teaching practice can coexist with countervailing pressures for more standardized accountability from teachers and schools.

History and Context of Experiential Education: The Early Years

Experiential education has played an influential role in the ongoing ideological debate about the nature and purpose of American schools. Experiential education is often placed in the category of "progressive education" or so called "new education" (a term used by educational reformer, John Dewey, beginning in 1899). Dewey is frequently

cited as the contemporary father of experiential education's entry into American schools and its entry into contemporary educational thought (Seaman, 2009; Kolb, 1984). Dewey (1938) offers a philosophical and practical step away from traditional education with his formulation of a theory of experiential education. Dewey, a philosopher, born in 1859, asserted that experience was the center piece of all learning. Dewey sought to juxtapose the core philosophy of his "new education" with traditional education, describing traditional education as, "…one of imposition from above and outside. It [traditional education] imposes adult standards, subject-matter, and methods upon those who are only slowly growing toward maturity" (Dewey, 1938, p. 19). Essentially Dewey argues that traditional education is a static enterprise; concerned with imposing already created knowledge and an organized set of skills upon the young, through teachers who are the agents of communication of this static knowledge. Dewey (1938) sums up his new philosophy of education: "…there is an intimate and necessary relation between the processes of actual experience and education" (p. 20).

Dewey's philosophy. Dewey's philosophical stance about education expanded on western epistemological and metaphysical thought through an insistence that experience is the starting point for all learning and for ultimately understanding the way the world works. From an epistemological standpoint, Dewey moved the conversation forward by insisting that pure reason and data from our senses, two things that were typically seen as diametrically opposed, are both valuable tools for understanding the world (Warren, Sakofs & Hunt, 1995). Dewey suggested that, "The goal of learning is to know about the world as we experience it, and both theory and practice are components in the scientific method for achieving this knowledge" (as cited in Warren et al., 1995, p. 12). Dewey's

placement of experience at the core of learning had significant implications on the design of the traditional classroom as well as on the teaching practice of traditional teachers.

At the turn of the 20th century, Dewey's theories, embraced by progressive educators, were thrust into a battle of philosophical ideals about the role of public schooling (Imig and Imig, 2006; Null, 2007). Dewey's ideas about education, placing the child at the center of learning and experiences as the catalyst for learning and growth ran counter to the more traditional view of the learner and the role of schools. Traditional views place the curriculum (or subject matter) at the center of learning (Gutek, 1988).

Essentialism is one form of a traditional "teaching and learning" ideological viewpoint that runs counter to the progressive ideals extolled by Dewey. Essentialists argue that the role of schooling is to impart the basic elements (essentials) of human life (Gutek, 1988). William Bagley, a contemporary of Dewey, is often cited as the father of essentialism in American education (Imig & Imig, 2006; Null, 2007). Bagley, who was a professor at Columbia University and a contemporary of the educational leaders championing the progressive movement at this same university, held views that contradicted progressive educators through an emphasis on teacher-centered schools and a more traditional curriculum (Imig & Imig, 2006). The traditional school, as understood by Dewey, was an institution guided by discrete subject matter and the associated wisdom and traditions handed down from the past. Therefore the role of the traditional teacher was to impart this body of knowledge and wisdom to the learner. In contrast Dewey understood a progressive school to be one based on the interaction of the learner with the environment and the role of the teacher as the facilitator of purposeful experiences that encouraged growth and learning (Gutek, 1988). This clash of ideals

between traditional and progressive views about the purpose of school, the role of the teacher and the choice of curriculum continues today (Imig & Imig, 2006).

Dewey considered himself a pragmatist and was influenced by William James, who is considered a philosophical giant in the arena of pragmatism. Dewey was first a philosopher who then turned his attention to applying philosophy toward actual problems of society, including the role of education. Pragmatism is understood as a central framework within experience-based education (Donaldson and Vinson as cited in Kraft and Sakofs, 1988, p. 94). At the turn of the twentieth century, William James wrote and talked about the pragmatic philosophy which clearly had applications in the field of education. Dewey in turn translated James' pragmatist philosophy to apply it more specifically to education. In James' book, *Talks to Teachers and Students* (1900), he outlines his perspectives on psychological theories as applied to teaching and learning. In this book, connections to Dewey's experiential theory are evident. James (1900) writes,

> Don't preach too much to your pupils or abound in good talk in the abstract. Lie in wait rather for the practical opportunities, be prompt to seize these as they pass, and thus at one operation get your pupils both to think, to feel and to do. (p. 71)

James's assertion of these theories related to teaching and learning advanced Dewey's thoughts and philosophy about education and represented an early attempt to specify what is meant by experiential teaching and learning. Dewey himself characterized his own social and educational philosophical views as pragmatic (Gutek, 1988).

Dewey's assertion of a philosophy of experiential education provided a strong foundation for others who followed to flesh out a concrete experiential methodology. While Dewey is accepted as the primary forefather of experiential philosophy, other well-

known philosophers and educators are credited with advancing the experiential model. In a recent publication, *Beyond Dewey and Hahn: Foundations for Experiential Education* (Smith & Knapp, 2009), the variety of philosophers and educators included in this anthology of experiential philosophers and educators is diverse and eclectic, offering a sense of how much Dewey's philosophy has been expanded upon over the last century. Included in this anthology (among a long and diverse list) are Paulo Friere, author of *Pedagogy of the Oppressed* and founder of the concept of, "liberatory pedagogy", Maria Montessori, founder of the "Montessori" method of schooling, and Carl Rogers (psychotherapist) who introduced the practice of "Client Centered Therapy" (Smith and Knapp, 2009). As this sampling illustrates, experiential theory has influenced and been influenced by diverse thinkers from a variety of fields. Examples of experiential methodology can be found in a variety of non-traditional settings; however, the implementation of experiential methodology in schools and by public school teachers is the central focus of my research.

Schools and experiential teaching. Dewey's writings in his book, *School and Society* (1899), underscore his concern about both the organization of traditional schools and the curriculum offered in a typical traditional school. Dewey describes the shift that he calls for in education as being as significant as Copernicus' astronomical shift from the Earth to the sun: "In this case the child becomes the sun about which the appliances of education revolve; he is the center about which they are organized" (as cited in Dworkin, 1959, p. 53). This placement of the child at the center of the school curriculum and the school itself is a fundamental shift from how traditional education had understood the position of the learner.

Dewey established his Laboratory School in conjunction with the University of Chicago in 1896, in order to put some of his ideas and theories into practice. Through the establishment of the Laboratory School, Dewey sought to create a proving ground for developmental psychology and a place to develop new instructional approaches and materials (Tanner, 1997; Gutek, 1988). Dewey's motivations for the school stem from what motivated him in his ongoing study of the nature of learning and the organization of schools. Dewey described this motivation: "…a desire to discover in administration, selection of subject matter, methods of learning, teaching and discipline, how a school could become a cooperative community while developing in individuals their capacities and satisfying their own needs" (as cited in Tanner, 1997, p. 21).

In the early 1900s, the Gary Schools in Gary, Indiana were an early attempt to comprehensively actualize Dewey's vision for progressive education in a public school system in the United States. The unique schools developed in Gary were noted as a place where students gained diverse skills. One former Gary student, Marie Edwards, talks about her experience in the Gary Schools: "In the cafeteria you helped in the mass production of food. I can remember spending a week taking the eyes out of potatoes. I got a C for talking too much while doing it, but through those two years in the junior high I came to have a pretty good idea of the whole cafeteria function and respect for the people who worked there" (Mondale & Patton, 2001, p. 89).

Many urban school systems in the United States came to adopt some of the same progressive practices of the Gary Schools, however, the progressive movement stalled as a large-scale movement almost as quickly as it emerged. By 1930, many schools that had adopted a more progressive curriculum had returned to a more traditional curriculum due,

in large part to pressure from new immigrant families to the United States (Mondale & Patton, 2001). Other researchers suggest that by the early 1940s the nation was too focused on World War II to give any serious attention to these new reform efforts (Marzo, 1999). Other detractors of the progressive movement insisted that the singular focus on the individual learner was a significant limitation of experiential (or progressive) theory and therefore one cause of its demise as a viable public school curriculum model. Boyd H. Bode, an educational philosopher of the time writes,

> Progressive education stands at the parting of the ways. The issue of democracy is becoming more insistent in all the relations of life. . . . If progressive education can succeed in translating its spirit into terms of democratic philosophy and procedure, the future of education in this country will be in its hands. On the other hand, if it persists in a one-sided absorption in the individual pupil, it will be circumnavigated and left behind. (as cited in Bullough and Kridel, 2003, p. 163)

Influence on curriculum and school design. A large-scale longitudinal study, often known as the *Eight-Year Study* was conducted in 1930. While commonly known as the *Eight-Year Study*, the research was actually carried out over a twelve-year time period (1930 – 1942). The eight years, in the title, refers to a typical student's progression through high school and college which requires eight years in the United States (Kridel and Bullough, 2007). *The Eight-Year Study* sought to provide secondary schools with the freedom to explore and innovate with curriculum and school design. To ensure that students would not be penalized for being educated in this era of innovation (as part of the study) colleges and universities were asked to cooperate with the changing curricular standards when considering college admission for the participating students. Two

hundred and eighty-four colleges and Universities agreed to participate and initially twenty-seven secondary schools volunteered to participate (Kridel & Bullough, 2007). Ultimately thirty high schools across the United States participated in the study. The results of the *Eight-Year Study* indicated that the innovation was successful in educating the students attending the participating schools. Even with this important finding, the era of exploring progressive teaching practices was drawing to a close. While Dewey's vision did not succeed as a large-scale reform in the 1930s, it did significantly alter future debates among educators about the role of the student and the role of the teacher in educational settings.

A variety of school reformers tried again to take up Dewey's call for reform in the 1960s with an attempt to make large-scale change to traditional education (Kraft, 1995). It was at this time period that the *Foxfire* method, one of many progressive curricular programs, was founded. *Foxfire*, a teaching method founded in 1966, bases its methodology on eleven core principles holding *student choice* as the top priority. As in experiential methods, with *Foxfire*, the student is at the center and drives the curriculum from this position (The Foxfire Fund, 2010). Curricular programs, such as *Foxfire,* have had some success at bringing progressive experiential practices into the mainstream of public schools but their influence remains on the fringes rather than at the core of mainstream practice.

Experiential theory, since Dewey's first assertion of it, has also had a significant impact on the field of adventure education in programs such as *Outward Bound*. *Outward Bound's* success with the use of this methodology led this organization to move into the design of public schools and public school curriculum, placing experiential methods at

the core of the school design. “In 1992, *Outward Bound's* Expeditionary Learning proposal became one of 11 selected for funding from the almost 800 solicited by the New American Schools Development Corporation (NASDC) for "break-the-mold" whole-school reform” (Expeditionary Learning Schools Outward Bound: *Overview and History*, 2010). While models and designs, such as *Foxfire* and *Outward Bound* have demonstrated success at boosting student achievement, recent moves toward more standardized accountability in public schools have detracted from their more mainstream adoption.

With public schools’ increased interest in accountability systems in the 1980s, progressive methodologies, such as experiential methodologies were de-emphasized or abandoned all together. Imig and Imig (2006) describe this accountability emphasis as a return to essentialist control in public schools and place the responsibility for this shift on policy makers who adopted an essentialist viewpoint in running of schools and in curriculum decisions. This shift to an increasing emphasis on accountability relegated much experiential teaching to non-traditional avenues such as through the creation of magnet schools and in the development of charter schools. For example, as described previously, *Outward Bound*, a national non-profit, is engaged in the development of *Expeditionary Learning Schools*. These schools are organized primarily through charter school channels. Currently there are one hundred and sixty-five *Expeditionary Learning Schools* in the United States. These schools are grounded in experiential education principles, what Outward Bound has termed, “expeditionary learning” (Expeditionary Learning Schools Outward Bound: *What is ELS?,* 2010). One of these schools, *Evergreen Community Charter School*, is located in western North Carolina. Evergreen describes its

mission as "...a learning community committed to the pursuit of excellence in the holistic education of mind, body, and spirit. We prepare students for successful lifelong learning, environmental responsibility, and service*"* (Evergreen Community Charter School*,* 2010).

Examples of individual schools and particular curricular programs, grounded in experiential theory are not hard to find. However, finding teachers who practice experiential teaching in public schools, those not explicitly designed to be experiential, is more difficult. What makes for an experiential practice and what distinguishes this approach from more traditional approaches? How does one identify an experiential teacher? These questions can only be answered by first defining what is meant by an experiential practice.

Experiential Theory: Beyond Dewey

Experiential models and formulas**.** Educational theorist, David Kolb, who developed the Experiential Learning Model in the 1970s, considers John Dewey, Kurt Lewin, and Jean Piaget as the foremost ancestors of experiential theory (Kolb, 1984, p. 15). As Kolb (1984) writes, "The Dewey, Lewin and Piagetian traditions of experiential learning have produced a remarkable variety of vital and innovative programs. In their brief histories, these traditions have had a profound effect on education and the learning process" (p. 18). Dewey lays the initial groundwork for experiential theory in his book, *Experience and Education,* in 1938. This theory was further built upon by Kurt Lewin in his work in social psychology and more specifically with group dynamics and T-groups in 1951(Williamson, 1979). Finally, Psychologist Jean Piaget's cognitive development theory has, at its core, an emphasis on experience as being the most significant learning

tool. “Stated most simply, Piaget’s constructivist theory describes how intelligence is shaped by experience” (Kolb, 1984, p. 12). Kolb summarized these forefathers’ contributions and synthesized their theories into one framework or model. Kolb’s definition of experiential learning, “Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38), drives his Experiential Learning Model which states that there are four primary components to an experiential process:

> According to the four-stage learning cycle…immediate or concrete experiences are the basis for observations and reflections. These reflections are assimilated and distilled into abstract concepts from which new applications for action can be drawn. These implications can be actively tested and serve as guides in creating new experiences. (Kolb, Boyatis, Mainemelis, 1999, p. 3)

Recent research on best practice in education, through the lens of cognitive science, also places *experience* as one of the core components of effective teacher practice. Feden and Vogel (2003), speaking from a cognitive science perspective, propose the following formula to assist teachers in considering how one can most effectively help students learn: “Knowledge + Experience + Reflection = Growth” (Feden & Vogel, 2003, p. 17). Another contemporary understanding of experiential methodology is described by Principal Stephen Murphy at Stonington High School in Connecticut (2009) as “authentic” learning: “…Teachers view themselves as true facilitators of learning (they provide the work) and allow students to construct their own knowledge (they do the work), learn from one another, and become responsible for their own learning” (Murphy, 2009, p. 6). The formula for what Murphy calls, “authentic learning” is: “launch-explore-

summarize." This formula places, "explore" (in other words, "experience"), at the core of the curriculum design and clearly places the student as the driver of the learning process. "The essence of the Stonington constructivist philosophy is that students learn best when they are engaged in meaningful, relevant, and authentic learning tasks" (Murphy, 2009, p. 8). While not called "experiential" by name, this description of "authentic" learning clearly has key components of experiential methodology within it (constructivist in nature and learner-centered).

A clearly formulated theory of experiential learning is first established with Kolb's contribution of a model in the 1970s and psychologists and educators have added their own twists and dimensions. Many alternative programs and non-traditional education curricula have incorporated and experimented with Kolb's Experiential Learning Model, developing their own models to fit their students or school's particular circumstances. Kolb's theory has, to date, provided a broad framework for organizations or schools interested in establishing an experiential learning environment. However, recent research in the field of experiential education, has highlighted some weaknesses in Kolb's experiential model (Seaman, 2008). Seaman asserts that the "learning cycle" era is over and that Kolb's theory is perhaps more accurately described as an ideology or philosophy, rather than a theory. Seaman encourages increased scholarship and inquiry into clearly conceptualizing experiential learning and seeking effective models for implementation and instructional practice. This study seeks to deepen the understanding of experiential practice to contribute to the scholarship in this field. With Seaman's assertion that Kolb's learning model may need updating or rethinking, finding an accepted current definition of experiential education was important for the purposes of

my study. The Association for Experiential Education has taken the step to develop a clearly articulated experiential methodology by providing specific guidelines for the practice of experiential education.

An experiential practice defined. The Association for Experiential Education (AEE) serves as the premier professional organization for experiential educators serving in both traditional settings, such as public schools, as well as alternative settings, such as wilderness therapy programs. The association provides a clearinghouse for information and research about experiential methodology and best practice. AEE was founded in 1977 after a group of educators met in Boone, North Carolina to discuss how to engage students more meaningfully in education. "The group believed that the core of learning is greatly enhanced by experiential forms of education" (Association for Experiential Education, 2011, "Our History," para.1). As described by AEE: "The mission of AEE is to develop and promote experiential education. The association is committed to supporting professional development, theoretical advancement and the evaluation of experiential education worldwide" (Association for Experiential Education, 2011, "Our Mission"). In addition to providing a central location for creating and disseminating information about experiential education, the organization has formulated a clear definition of experiential education as well as a framework (in the form of a list) for the practice of experiential education. The list is comprehensive and AEE suggests a wide application of its use for a variety of practitioners including camp counselors, teachers, and therapists. The following is the checklist provided by AEE (2011):

- Experiential learning occurs when carefully chosen experiences are supported by reflection, critical analysis and synthesis.

- Experiences are structured to require the learner to take initiative, make decisions and be accountable for results.
- Throughout the experiential learning process, the learner is actively engaged in posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, and constructing meaning.
- Learners are engaged intellectually, emotionally, socially, soulfully and/or physically. This involvement produces a perception that the learning task is authentic.
- The results of the learning are personal and form the basis for future experience and learning.
- Relationships are developed and nurtured: learner to self, learner to others and learner to the world at large.
- The educator and learner may experience success, failure, adventure, risk-taking and uncertainty, because the outcomes of experience cannot totally be predicted.
- Opportunities are nurtured for learners and educators to explore and examine their own values.
- The educator's primary roles include setting suitable experiences, posing problems, setting boundaries, supporting learners, insuring physical and emotional safety, and facilitating the learning process.
- The educator recognizes and encourages spontaneous opportunities for learning.

- Educators strive to be aware of their biases, judgments and pre-conceptions, and how these influence the learner.
- The design of the learning experience includes the possibility to learn from natural consequences, mistakes and successes.

(Association for Experiential Education, "The Principles of Experiential Education")

Within this framework, Kolb's simple formula for an experiential learning process is clearly discernable: Experience, reflection on this experience leading to conceptual understanding and then testing of concepts through more concrete experience. Other core components of experiential education are present within this check-list: learning tasks that mirror real-world problem solving (authentic learning tasks), the learner as the driver of the exploration and focus of learning (student-centered), and results that naturally arise from a learner's exploration and experiences (natural consequences). The checklist developed by AEE serves as a guideline for designing and assessing experiential teaching in myriad settings, including a public school classroom.

Experiential teaching by other names. Experiential teaching is included as a foundation of a variety of other teaching methods known by different names including inquiry-based teaching and cooperative learning. In inquiry-based teaching, as in experiential teaching, the student is at the center of the learning. In the case of inquiry-based teaching, the student's role is as the researcher or principal investigator in formulating questions, creating hypotheses and designing investigations (Llewellyn, 2005). Process Oriented Guided Inquiry Learning (POGIL) is one form of inquiry-based teaching. POGIL, particularly designed for classroom science instruction, focuses on the

teaching of content as well as processing skills. As described by the organization, *Process Oriented Guided Inquiry Learning* (2011), A POGIL classroom or lab emphasizes allowing students to seek their own answers through active problem solving and places the teacher in the role as a facilitator who spends most of his or her time observing. The POGIL approach is aligned with an experiential methodology in its student-centered approach. Moog, a chemistry professor and proponent of POGIL sums up the impact of a POGIL approach: "If I go into a classroom, I can tell you after the first 10 minutes if it's a POGIL classroom. For example, if the only person who's spoken in those 10 minutes is the professor, that's not a POGIL classroom" (Moog, 2011). The POGIL approach was specifically designed for use in a school classroom and as such it is a clear example of how experiential methodology can be effectively used in this more traditional setting.

In the pedagogical practice of cooperative learning, the emphasis is on student interaction within small groups. Riley and Anderson (2006) describe how students maximize their learning through structured group interaction toward a common goal. "Cooperative learning provides a nonthreatening learning context for interaction among students who exchange alternative perspectives, ideas and critical feedback" (Riley and Anderson, 2006, p. 131). Although they describe how cooperative learning has been shown in numerous studies to produce higher student achievement as well as positive relations among students, they assert that its use in traditional classrooms is not widespread.

Public schools and public school teachers have included experiential methodology in their practice, to varying degrees, since Dewey's assertion of it as a superior

methodology to traditional methods. However, the advent of standardization and more stringent accountability systems in public schools has perhaps forced some teachers in mainstream schools to shift an experiential methodology to the periphery. How have high stakes testing and an era of accountability impacted teaching practice, particularly an experiential teaching practice? How does this pressure effect instructional decisions teachers make?

Accountability and Its Impact

The report*, A Nation at Risk*, published in 1983, was the dawning of a new age of accountability in our nation's public schools. This report highlighted the mediocrity of American students based on a comparison of American students' test scores to test scores of students from other industrial nations (Musial, Nieminen, Thomas and Burke, 2009). *A Nation at Risk* prompted the introduction of more rigorous standards for students and led the movement of individual states towards the implementation of *high-stakes testing*. Following the publishing of *A Nation at Risk*, North Carolina developed the ABCs accountability model which now includes End of Grade testing (in elementary grades) and End of Course testing (in Middle and High School). As described by the NC Board of Education (2007), the End of Course testing was developed for two purposes:

> To provide accurate measurement of individual student knowledge and skills specified in the North Carolina *Standard Course of Study* and to provide accurate measurement of the knowledge and skills attained by groups of students for school, school system, and state accountability. (North Carolina Public Schools, *Understanding NC End of Course Tests,* 2007)

In addition to providing measurement for these two reasons, the End of Course test is mandated by the state to account for 25% of a student's final grade in tested subjects (North Carolina Public Schools, 2007). The changes implemented at the state level (in response to *A Nation at Risk*) were a harbinger for the nation wide changes to come through the *No Child Left Behind Act* enacted in 2002. This act reauthorized the Elementary and Secondary Education Act of 1965 and mandated testing to demonstrate the stated goal of this act: to improve students' academic achievement.

The core rationale of mandated standardization is that uniformity leads to equality of educational opportunity for all students. "To improve student learning across the board, all students must be held to the same set of high academic expectations, accompanied by a uniform system of testing…" (Wills & Sandholtz, 2009, p. 1069). Positive outcomes of an increased focus on accountability include a greater emphasis on state curriculum, more standardization across schools, increased expectations placed on students and greater support offered to schools that are considered low performing. The negative outcomes from the increased accountability efforts include a lack of attention placed on non-tested subjects, an overemphasis on instructional materials used to "teach to the test" and an effort to move students out of school and/or tested subjects in order to raise test scores (McCloskey & McMunn, 2000). John Parker, a former Superintendent and teacher, relates his dismay about the negative effects of accountability in North Carolina: "The state's unmitigated focus on accountability testing as the chief measure of educational quality was undermining the real qualities of education: learning for understanding and assessing learning in ways that accurately reflect what children know and can do" (Sacks, 1999, p. 122). Parker describes the additional concern that the

pressures of the ABC accountability system convince teachers to resort to worksheet instruction and a rote presentation of core curriculum (Sacks, 1999).

Impact on teacher practice. With the increased attention on test scores, teachers have had to adapt their practice in response. Diane Ravitch, a historian and leading education scholar who is renowned as a critic of progressive teaching practices and an initial leading proponent of the standardization authorized by *No Child Left Behind*, has very recently expressed a change of heart about the impact of standardized testing. In a recent interview with *Democracy Now* (2010) Ravitch describes the damage done to teaching by *No Child Left Behind* mandates:

> I believe that *No Child Left Behind* has been a failed policy, that it's dumbed down the curriculum, narrowed the curriculum. Our kids are being denied a full education, because so much time is being spent on test prep and on tests that are really not very good tests. (Democracy Now, 2010)

Many professional educators express deep concern about what an increased emphasis on standardized test scores is doing to the design of schools and to classroom teaching methods. Ives and Obenchain (2006) suggest that teachers opt to choose more time-saving instructional strategies in order to address the pressures created by the testing mandates. "Teachers choose time-efficient delivery models (e.g. lecture) over instructional models that promote critical thinking, problem-solving, and inquiry (e.g. experiential education-based models)" (Ives and Obenchain, 2006, p. 63). With increased standardization in schools, teachers may feel pressured to take on a more transmission oriented teaching style. As described by Wills and Sandholtz (2009), a transmission perspective informs the teacher's sense of what his or her responsibilities are and often

this leads teachers to see their role as a manager of students learning who provides information, facts and ideas. Some educators insist that the increased focus on test scores takes the attention away from the more significant issues facing schools, that of addressing the needs of diverse learners.

> Test scores are popular because they are easy to understand – they either go up or down and up is better than down – and because they are cheap – standardized tests can be scored by machines. Most of all, they seem to give the country a simple answer to a complex problem…Tests are necessary but not a sufficient reform. (Graham, 1993, p. 93)

Competing pressures: Accountability versus innovation. McClosky and McMunn (2000) further illustrate the pressures that teachers experience when faced with an increased emphasis on testing with the simultaneous demand for innovative and effective teaching practices. They describe the pressures experienced by teachers as competing forces: "…the push to implement short-term 'quick-fix' strategies…and the desire to continue instructional reforms previously initiated" (p. 115). Along with the perceived pressure to "teach to the test," teachers experience a similar pressure to narrow the scope of classroom instruction as well as classroom assessment. This narrowing is an attempt to conform the instruction to the mandates of the high stakes test and in hopes that the classroom instruction will have an effect on test scores (McCloskey & McMunn, 2000). The prominence placed on standardized testing necessarily limits the emphasis that can be placed in other areas, such as on effective classroom practice. As Sacks (1999) outlines:

> Researchers have found consistently that one of the most damaging effects of large-scale, big-stakes standardized testing in schools has been to: 1) oversimplify what's taught in school and 2) to severely constrict what is taught to only those items most likely to appear on an upcoming standardized test. (Sacks, p. 128)

Sacks (1999) provides an example: A study carried out in British Columbia examined classroom teaching in tested and non-tested grade levels. The results clearly indicated there was a difference: "…teachers [in tested subjects] were far less likely to engage students in multifaceted approaches to learning, such as laboratory experiments and class discussions – and more likely to employ traditional and rote teaching methods" (Sacks, 1999, p. 129). These rote teaching methods address what is required by standardized tests, considered by some as trivial knowledge. Standardized tests often test a student's recall of facts or a student's ability to produce a routine set of procedures. This is due, in large part, to the difficulty in designing tests that can be taken in an acceptable timeframe (Feden &Vogel, 2003). Feden and Vogel (2003) explain that, "…the assumption that underlies such testing runs contrary to what we know about promoting deep and lasting knowledge through the use of powerful principles and strategies" (p. 269). Recent literature on "critical theory" also suggests that the current emphasis on standardized test scores is a detriment to the development of innovative teaching. While standardized measures can offer one picture of the performance of young people in schools, it offers a limited picture that can be misinterpreted and taken out of context (Pressley as cited in Morrell, 2009). High stakes testing has a considerable impact on teacher decision making and often leads to a more standardized approach to curriculum delivery: "High stakes test-based accountability can lead to the implementation of standardized approaches to

teaching, a reform that can undermine teacher authority over curriculum and instruction" (Wills & Sandholtz, 2009, p. 1074).

With increased accountability pressures, teachers are constantly walking a balancing act with regard to how and whether to assume authority over the curriculum and instruction in their classrooms. This tension has most recently been characterized as a tension between professionalism and standardization. Professionalism, in the field of teaching, emphasizes teacher expertise and professional judgment (Wills & Sandholtz, 2009). Wills and Sandholtz (2009) describe the value of professional autonomy: "Applied to school settings, professional autonomy enables teachers to make curricular and instructional decisions to meet the diverse needs of students in their classrooms" (p. 1068). Eisner describes these competing tensions by quoting from a summary from the Holmes group: "Ironically, at the same time that standardization is occurring, education policies are being promoted that urge that teachers, as the primary professional stakeholders, should have greater professional discretion in program planning and in monitoring and governing "their" schools" (Eisner, 2002, p. 72).

So, with all of this research highlighting the negative impact of standardized testing and the challenges facing teachers in how to respond, one wonders how a teacher can continue to employ progressive teaching strategies such as an experiential methodology? How have increased accountability pressures changed how an experiential teacher carries out his or her practice?

Experiential and Accountable?

The progressive versus traditional debate has a long history in education. Teachers and schools swing from one side to the other depending on the political and

social climate and what is emphasized at the state and national level (Imig & Imig, 2006). This "either/or" dichotomy can be a challenging balancing act for teachers. Progressive education places value on student choice and this can be seen, by some detractors in the "traditional camp," as counter to academic rigor.

> It is not surprising then, that many teachers see academic integrity and student choice as incompatible. Teachers who see them as incompatible practices but value both are faced with an interesting dilemma. Some teachers resolve the conflict by retaining for themselves decisions regarding the curriculum, grades, and classroom learning activities. Other teachers resolve the conflict between choice and academic integrity by providing choice during free time or 'after the work is done'. (Starnes & Paris, 2000, p. 394)

Critics of experiential methods voice concern about whether choice can coexist with academic rigor. This concern was one of the driving forces to instigate the *Eight Year Study* in the 1930s and 1940s. The study provided confirmation that students who were engaged in their own learning through the creation of student-driven curricula (e.g. experiential methodology) met and even exceeded academic expectations upon arriving at college (Starnes and Paris, 2000).

Lewbel and Hibbard (2001) found that at one Connecticut school, a focus on performance-based teaching and learning has provided a framework for improving test scores and improving student learning: "The secret…is a focus on student work and the performance of realistic tasks built around clearly defined themes, skills, work habits, and self-assessment strategies" (p. 17). These practices include key components of experiential teaching and learning principles.

Even with the corroborating evidence from the *Eight Year Study*, as well as research from a wide variety of sources, that academic rigor can go hand in hand with student-centered learning, many teachers experience the pressures of accountability too greatly to make the choice to teach from an experiential standpoint. This pressure is described well in an article about *Foxfire*-inspired teaching: "Sometimes teachers feel as if they have to 'play it safe' and revert to more teacher-directed practices (Starnes & Paris, 2000, p. 397). Starnes and Paris (2000) outline how *Foxfire*-inspired teaching not only leads to significant student growth in responsibility, attitude, creativity and involvement, but also to improved test scores.

The pressures to be both innovative in teaching methods and responsive to accountability pressures leave many teachers with a difficult choice. And for some, it is easier or perhaps more comfortable to choose the more teacher-centered and standardized route. One principal, participating in the *Eight-Year Study*, described the conflict he and his teachers experienced when provided the freedom to move to a more progressive approach: "My teachers and I do not know what to do with this freedom. It challenges and frightens us. I fear that we have come to love our chains" (Manzo, 1999, p. 32).

Given the pressures to conform to a more traditional approach to teaching, what factors influence a teacher's ability to teach experientially? What are the factors that are within a teacher and what are the factors that are outside the individual teacher that may influence whether he or she is able to teach experientially?

School Factors and Teacher Factors that Impact Experiential Teaching

Fullan (2000), known for his research to understand and promote innovation and change in public schools, indicates that characteristics of the teacher as well as

characteristics of the school environment both play a role in making a school effective. In a study on self-regulated learning practices in public schools, Lombaerts, Engels & Van Braak (2009) focus on what they label as *school* and *teacher* context characteristics as being influential to a teacher's approach to curriculum delivery. Distinguishing these two factors provides a framework for my exploration into teachers' implementation of an experiential practice. For this study I categorized these factors as either "teacher" (characteristics personal to the teacher) factors or "school" (characteristics of the learning environment which includes the particular school or larger system) factors. The school factors I explore include classroom configuration, student attitude, collegial support, standardization pressures, professional development and school leadership. The teacher factors I include are teacher beliefs about students, content and pedagogical knowledge of the teacher and teacher preparation prior to entering the profession.

School factors. Something as seemingly trivial as the classroom space available can support or hinder a teacher's experiential practice. Inderbitzen and Storrs (2008) describe just these sorts of challenges when describing their pilot year of integrating more student-centered teaching into their practice at a State University: "We came to understand the real importance of the learning environment as even the physical configuration of our assigned classrooms constrained our efforts at learner-centered approaches" (Inderbitzen & Storrs, 2008, p. 50). Inderbitzen and Storrs also describe the resistance they experienced from their students when they implemented non-traditional teaching styles. While the students described their learning as rich and clearly describe enjoying the lessons, the students also say they are challenged by the unique format and the change of their role in the classroom: "Our students had difficulty imagining that

valuable learning could take place outside of a traditional setting; they could not envision a meaningful education without the familiar trappings of a school building, standard core curriculum and hierarchical authority" (Inderbitzen and Storrs, 2008, p. 49). In addition to the classroom configuration and resistance from students, Inderbitzen and Storrs also hear complaints about their teaching approach from other faculty and staff. Complaints focus on the noise level emanating from their rooms and about the hassle of having to wait for these teachers to clean up and reconfigure their classrooms prior to the start of the next class. The factors described in this study (classroom configuration, student attitudes, other faculty member's lack of support) would be considered school factors that hinder innovative teacher practice. The emphasis by public school systems toward standardization of curriculum and assessment is also potentially influential in a teacher's pedagogic choices.

Negative impact of standardization pressures. Potential challenges to progressive teaching practices are explored in a study conducted by Mustafa and Cullingford (2008) in Jordan. In their study, the effect of a centralized educational system (and related standardization) on teacher practice is explored. Their findings, while related to the particular context of Jordan, have relevance to any teacher working in a standardized system. Their study uncovers a number of factors that hinder teachers from exploration of non-traditional teaching methods. The pressures (from external sources) of teaching "the core subject" was first and foremost but closely followed by other "school" factors including the large amount of content to cover in a short amount of time, the excessive (centralized) dependence on textbooks as well as lack of training in other teaching methods (Mustafa and Cullingford, 2008).

Wills and Sandholtz' research (2009) explored the influence of state mandated testing on teachers' sense of autonomy and judgment about classroom pedagogy and instructional decision making. Their research highlights the pressures teachers feel to cover mandated curriculum (in order to raise test scores) and how these pressures force teachers to make difficult decisions. Wills and Sandholtz' findings indicate that administrators who support teacher autonomy may be able to mitigate some of the negative pressures of a test-taking climate. Llewellyn (2005) lists the following as structural or procedural (school-based) issues facing teachers who seek to have an inquiry-based practice: high stakes assessments, mandated curriculum and standards, daily schedule and textbooks. Llewellyn describes how end-of-the-year exams inadequately measure the learning that occurs in an inquiry based classroom and how standardized "one-size-fits-all" curriculum makes it challenging for teachers to differentiate instruction and offer flexibility for student-centered instruction. Additionally Llewellyn (2005) depicts textbooks as being antithetical to many constructivist (experiential) approaches in its provision of absolutes through definitions and concepts offered as pre-teaching material, for example. Since the textbook is often the only source provided by a school for teachers and students to use, this can be a challenging obstacle to overcome. Finally, Llewellyn explains that the daily schedule in secondary schools can be a deterrent to teaching in an inquiry-based fashion. The short time frame in many high schools (45 minute blocks) prescribed for classes can constrain a teacher's efforts to provide more open-ended instruction.

Professional development. Darling-Hammond (2004) describes school factors that support teacher innovation and progressive teaching practices. She highlights shared

planning time with other teachers and professional development time as beneficial for teachers in addressing the needs of students with diverse learning needs. Darling-Hammond & Bransford (2005) also outline the value of teachers learning and developing their practice within "communities of practice" – collaborative professional groups of teachers inquiring and learning together to improve their own teaching practice. These communities of practice place emphasis on the role of the teacher in constructing new knowledge with important results:

> These notions of knowledge for practice, developed within a professional community of inquiring teachers, inform many of the emerging pedagogies in teacher education that have been found to be associated with the implementation of new teaching strategies and improvements in student learning. (Darling-Hammond & Bransford, 2005, p. 383)

School leaders who seek creative solutions for supporting the ongoing professional development of their teachers are one factor that may support progressive teaching practices. Darling-Hammond (2004) suggests that in order to facilitate teacher planning time and professional development, school leaders may need to rethink staffing arrangements as well as class scheduling.

Inadequate professional development is also cited as a potential issue in supporting teachers to teach from a more experiential standpoint. This sense of inadequacy lies in the typical design of the professional development as a one-shot workshop or in-service that doesn't allow for the continuous growth and feedback that is needed as teachers experiment with an experiential (or inquiry-based) approach (Llewellyn, 2005). Marzano (2003) highlights the importance of teacher participation in

professional development activities, citing research on the significant impact of these activities on students' math and science achievement. The type and quality of professional development opportunities offered teachers can greatly vary depending on school leadership and thus, the stance of the school leader is an important factor for consideration.

School leadership. Recent research (2008) has focused on the impact the school principal as well as other school leaders (department chairs, for example) have on communities of practice within a school as well as the affect school leaders have on teachers' beliefs and instructional practices (Printy, 2008). Printy's research indicates that principals and department chairs can positively influence teachers' commitment to, and learning within communities of practice.

> Principals must have knowledge of the subject matter, they must know how to teach the subject matter, and they must know how students learn the subject matter. But they also must understand teachers as learners and how to facilitate teacher learning. (Printy, 2008, p. 196)

Printy suggests that additional research is necessary to fully understand the impact of department chairs on classroom instructional practices. Findings from Supovitz, Sirinides & May (2010), on the influence of principal and teacher leaders on instructional practice, indicate that principals exert influence through teacher leaders working in a school. Supovitz et al. (2010) also highlight the influence these teacher leaders (called "peers" in their study) have on classroom instruction and thus on student learning. Wills and Sandholtz (2009) identify the concept of "constrained professionalism" to describe the professional balancing act that teachers are forced to walk in response to the pressures of

accountability. Their research points to school leadership as influential in supporting teachers to maintain autonomy over instructional decisions in the classroom.

Teacher factors. In addition to the influence of myriad "school" factors on teacher practice, there is also what I call "teacher" factors, which merit consideration. These are factors related to characteristics inherent in a particular teacher. The teacher factors I explore include teacher beliefs about learners, teachers' content and pedagogical knowledge and teachers' training and preparation prior to entering the teaching profession.

Teacher beliefs about learners. One significant "teacher factor" is the belief system of the teacher; how he or she understands the nature of teaching and learning. Teacher beliefs about learners and learning can contribute greatly to a teacher's approach to instruction. Gunel (2008) highlights the significance of teacher beliefs when organizing teaching reform efforts: "…efforts to help teachers understand and implement the learner-centered or constructivist approach should not only reflect additive skills but also fundamental changes to beliefs, knowledge and habits of practice that teachers hold" (p. 210). Lombearts, Engels & Van Braak (2009) cite a large body of research suggesting that teacher beliefs guide instructional pedagogy and influence teacher's perceptions and judgments. While their research is focused on self-regulated learning practices, their findings about teacher beliefs are relevant to experiential teaching practices as well. Lubinski (1994) asserts that teacher beliefs have a significant impact on the way instruction is delivered as well as on the classroom environment:

> If teachers believe that children should solve a variety of problems at an early age, they will make different decisions than will teachers who believe that children

> should have basic facts before solving word problems. Teachers who believe that the content of the mathematics is guided by the textbook make different decisions than do teachers who believe that the content of the mathematics is guided by students' interests and abilities. (Lubinkski, p. 477)

Rosenfeld and Rosenfeld (2008) underscore the significance of teacher beliefs as a component of effective teacher practice, and therefore indicate that any professional development plan include addressing teacher beliefs. Rosenfeld and Rosenfeld make a distinction between teachers with interventionist beliefs ("I can intervene to help a learner with difficulties") and teachers with pathognomonic beliefs ("I blame the learner for his difficulties") about students (2008, p. 245). Waters-Adams' (2006) study suggests that a teacher's core beliefs about teaching and learning has a profound effect on how a teacher organizes his or her teaching and may, in practice, trump a teacher's stated goals for teaching the particular subject:

> Understanding the nature of science, goals for science teaching, and wider beliefs about teaching and learning are locked together in a lived dialectical reality in which all elements relate to each other and in which the wider beliefs are probably dominant. (Waters-Adams, p. 938)

The influence of these core beliefs can be strikingly significant in the choices that teachers make in their practice. Waters-Adams research indicates that the longer one is teaching, the more strongly one holds onto beliefs about how children learn and therefore how they should best be taught.

Dewey himself captures this idea of teacher beliefs through the concept of "intellectual responsibility." Dewey had much to say about the preparation of teachers

including a clear sense that prospective teachers should have a thoughtfully considered ethical and psychological philosophy: “The effort must be to make teachers ‘thoughtful and alert students of education’ whose knowledge of the subject field, and ‘psychological and ethical philosophy of education’ have become incorporated into their working power” (as cited in Tanner, 1997, p. 72).

Content knowledge and pedagogical knowledge. In addition to the significance of what a teacher believes about how children learn, a teacher’s knowledge of the content is also a contributing factor in instructional decision making. Research into the role of content knowledge, particularly in the area of science education, has identified an important type of knowledge necessary to be an effective teacher: pedagogical content knowledge. Pedagogical content knowledge is identified by Shulman (1986) as the interface between pedagogical knowledge (knowledge about students and learning) and content knowledge (subject specific knowledge).

Research investigating science teaching indicates that sound pedagogical content knowledge (strong content knowledge coupled with the ability to translate this to students) leads to engaging instructional practice. Garnett and Tobin (1988) underscore that strong content knowledge makes it possible for teachers to clearly explain the subject, identify where students are struggling and ask probing questions to clarify student thinking. Content knowledge can also influence a teacher’s choice of instruction method. Childs and McNicholl (2007) identify the potential relationship between insecure classroom knowledge and a teacher’s choice of instruction. They site their prior research indicating science teachers’ perception that insecure content knowledge was a major challenge when trying to give students appropriate and effective teaching

explanations in the classroom. It appears that teachers with a lack of confidence in content rely on more of a transmission style approach to content, translating to a limiting effect on student learning (Harlen & Holroyd, 1997). Coping strategies (for low confidence in a subject area) include:

> Placing heavy reliance on kits, prescriptive texts and pupil work cards. Pupils have to follow clear instructions step-by-step. Emphasizing expository teaching and underplaying questioning and discussion (this avoids the awkward questions from pupils which teachers may think they would be able to answer). (Harlan and Holroyd, 1997, p. 103)

Teacher preparation. Teachers enter public school teaching through various certification routes. The form of preparation (or certification route taken) may impact a teacher's effectiveness as well as his or her instructional choices. Darling-Hammond (2002) has extensively explored the impact of different teacher preparation programs on teaching practice. . Darling-Hammond, Berry & Thoreson (2001) cite numerous studies indicating that, "…the more carefully constructed their [teacher candidates] coursework and clinical supports for learning to teach, the more teachers are able to accomplish with their students in the classroom" (p. 71). Darling-Hammond, Chung & Frelow's (2002) research also supports this claim that strong pre-clinical coursework can make a difference in how prepared teachers feel entering their first teaching position. This sense of preparedness has been correlated with a teacher's sense of efficacy as a teacher and his or her confidence about reaching specific teaching goals. In Zientek's (2006) study, differences in teachers by certification route (teachers who were alternatively certified compared to those who were traditionally certified) were explored. Zientek found small

differences between the two groups, with traditionally certified teachers reporting feeling better prepared than alternatively certified teachers. However, a strong mentor for the alternatively certified teachers seemed to be the critical factor in addressing this sense of preparedness. Additionally Zientek reports: "…regardless of certification route, prior classroom experience was a strong predictor of overall preparedness and a teacher's perception of his or her ability to be an effective teacher" (p. 326).

It is clear that there are school factors and teacher factors that influence a teacher's practice and his or her decision-making about whether and how to subscribe to a particular pedagogy, such as the choice to incorporate an experiential teaching practice. However, the external pressures from high stakes accountability may be too great for even a large dose of supporting factors to effectively counteract. So who are the teachers that opt to teach from an experiential standpoint in the midst of external pressure to do otherwise? My study explores deeply what makes it possible for a teacher to continue to teach from an experiential foundation with the clear countervailing pressures to teach in a more traditional manner. This study uncovers the factors, both teacher and school factors, that support or challenge a teacher's ability to teach from an experiential foundation within the context of a system with strong accountability pressures.

CHAPTER THREE: METHODOLOGY

Rationale for Research Approach

This study was an ethnographic case study of two secondary teachers who subscribe to experiential praxis as the foundation of their teaching practice. The context was secondary public schools in an age of accountability. As a phenomenological study, the focus was to gain an in-depth sense of the experiences of these teachers and to explore what factors (in school and in the teacher) support or hinder their ability to maintain experiential praxis. The experience of these teachers was explored through in-depth interviews, focused observations, interviews of students and an examination of classroom documents generated by the teachers and their students. The following questions provided the grounding focus for my research:

- How do these experiential teachers, teaching in secondary public school classrooms, describe and enact their experiential teaching practices in the context of a school system with a heavy emphasis on accountability?
- In what ways do these teachers describe and demonstrate the implementation of experiential teaching as compatible or incompatible with high stakes testing?
- How have accountability demands affected the experiential teaching practices of those who subscribe to this practice as the foundation of their teaching?
- What specific factors influence these teachers' ability to maintain an experiential teaching practice as a foundation of their teaching practice?

Qualitative Methodology

My interest in deeply exploring teaching practice indicated a qualitative approach for a number of reasons. I sought to understand deeply a phenomenon and to do this I

needed to immerse myself in the complexity of this phenomenon. As described by Stake (1995), the difference between a quantitative and a qualitative approach is in the type of knowledge sought. Stake argues that a quantitative researcher looks for causes while a qualitative researcher "…searches for happenings" (Stake, 1995, p. 37). Stake's description of expected outcomes from qualitative research fit my goals for this study: "thick description," "experiential understanding" and "multiple realities" (Stake, 1995, p. 43). Qualitative research fits with my interest in experiential practice. As a non-traditional teaching practice, it does not lend itself to being completely understood via conventional research methods alone. As Hedin (1983) describes:

> …The exact nature of experiential learning compared with classroom learning is that it is less predictable, less compartmentalized, perhaps more profound, and certainly more elusive to researchers. Serious research in experiential education must attempt to assess such learning outcomes, but must not expect to uncover them through conventional instruments and single-faceted methods. (p. 19)

My decision to use case studies as a way to examine teacher practice was also driven by a desire to provide a thick description of experiential praxis in secondary classrooms. My search for cases focused on finding teachers who would exemplify an experiential teaching practice at the secondary level. As Miles and Huberman (1994) describe, "Single cases…can be very vivid and illuminating, especially if they are chosen to be extreme or unique…"(p. 26). I ultimately chose two cases for my study because of they provided an illustration of a teaching practice grounded in experiential methodology.

Challenges and opportunities of a qualitative approach**.** Concerns about qualitative research are not unique to my particular study. Stake (1995) details the potential challenges inherent with qualitative research:

> Qualitative inquiry is subjective. New puzzles are produced more frequently than solutions to old ones. Its contributions to disciplined science are slow and tendentious. The results pay off little in the advancement of social practice. The ethical risks are substantial. (p. 45)

Even given these potential challenges, the possible value of developing a deep and rich understanding of this phenomenon far outweighed the likely challenges. Long-term participant observation (as well as interviews and an examination of documents) would provide the rich data I needed to answer my research questions. In addition to the richness and quantity of data available through long-term participant observation, this extended amount of time also gave me the time to consider my theories about experiential teaching practices in a public school setting. As described by Maxwell (2005), long-term involvement in qualitative research provides the time for the testing of theories and the development of alternative theories during the course of the research. My prolonged engagement also allowed time for the teachers to reflect upon their practice and to develop a greater understanding of their own teaching practice. Marshall & Rossman (2011) describe how allowing for a participant's understanding of a phenomenon to unfold changes the nature of the study and creates the possibility for new understandings.

In addition to an extended length of time in the field, I determined that using a variety of methods would help to gain a rich understanding of the phenomenon. Denzin and Lincoln (2008) underscore the importance of using varied and wide-ranging

interpretive methods to capture the worlds of experience studied by qualitative researchers. Deploying a wide range of methods provided an opportunity for the development of a rich description of a phenomenon. The use of varied methods also directly responded to the concerns of postmodernists and poststructuralists that objective observation is impossible given the complexity and subtleties involved for both the observer and the observed (Denzin and Lincoln, 2008, p. 29).

Delimitations of the study. I made selective decisions with regard to the sampling and methodology of this study. Those selective decisions lead to potential limitations in the findings of the study as well as the applicability of the findings. I describe these decisions in more detail in Chapter One. I chose to focus my research on experiential praxis (how it was enacted and described by these two teachers) to address my goal of gaining a deep understanding of the phenomenon of experiential teaching in secondary public schools within an era of accountability.

Sampling Approach

To explore my research questions, it was critical that I find secondary school teachers who were exemplary in their use of experiential teaching practices as a foundation of their teaching practice. My initial proposal described my sampling approach as reputational case sampling with the goal of finding teachers in western North Carolina, based on their reputation as experiential teachers. I proposed that this sampling would lead to snowball sampling (identified teachers leading me to other teachers), in the region, who self-identify as experiential teachers. My goal for number of teachers was unspecified and stated as, “until I reach saturation.” I imagined an ideal number to be approximately eight to ten teachers total for my sample.

My parameters for sampling were also initially defined by the type of school a teacher worked in, as well as the type of classes taught by the teacher. My goal was to find teachers who were teaching in mainstream (not charters or magnet schools for example) public schools, in western North Carolina. The western North Carolina region stretches from the state's largest city, Charlotte, to the state's western border with Tennessee. My decision to focus on mainstream schools was based on my desire to find teachers who were working in traditional environments that were not explicitly structured for experiential teaching and learning. This geographical determination was based on accessibility to the western North Carolina region. I also narrowed my search to secondary teachers who teach tested subjects (those that require NC End of Course tests) and who also self-identify as experiential teachers. Though I realized that identified teachers would perhaps not use the word, "experiential" to describe their own teaching practice, they would self-identify as using practices that are understood to be key components of an experiential teaching practice, as identified by the Association for Experiential Education (2011, "The Principles of Experiential Education").

Sampling challenges. My desire to find exemplary experiential teachers at the secondary level proved to be challenging. A handful of teachers were recommended to to me immediately by other professionals in the field of education, and I immediately made email contact with these teachers. I sent them consent forms via email and asked that they print out the consent and provide a signed copy for me at my first visit. The teacher's consent form is included in Appendix B. After sending the consent forms to these identified teachers and receiving their permission to observe their classrooms, I set up time to visit. These initial visits started in August, 2010 (at the beginning of the school-

year). I sent email inquiries to other teachers as they were identified to me from professional colleagues, from the department of the University where I am a student as well as through the teachers I had already identified. My inquiry emails to these teachers included the following statement:

> I am writing because I am a doctoral student at Western Carolina University working on my dissertation research. I am exploring the classroom teaching practices of experiential teachers. You have been recommended to me as being an experiential teacher. If you are interested in learning more about this study and in possibly participating, please email me back as soon as possible. I would welcome the opportunity to tell you more about my interests.

My initial short list grew to seventeen teachers; however various other challenges arose upon sharing more details about the study with these individuals. Some teachers were not familiar with the term, "experiential" or were unsure about whether their practice was grounded in this approach, but most remained open to hearing more about my interests. For example, one teacher I contacted offered: "I do not do 'experiential exercises' every day of course, so the timing might be a little difficult—especially with the groups I have right now… the 2 groups I have now will mostly pass [the EOC], but not because of the experiential learning…we will do lots of drill before the test to review" (personal communication, November 4, 2010). I appreciated the honesty of this teacher's response and realized that this was not the classroom that would offer me the richest example of a teacher grounded in an experiential practice. Other responses that excluded participants included teachers who said they were not currently or had never taught an EOC course and teachers who self-eliminated because of time constraints: "I wish I had the time to

help you this year, but between the committees that I serve on, other school related duties (coaching, district-wide initiatives) I will not be able to help you" (personal communication, October 11, 2010). Many responses revealed that a large number of these individuals were extremely busy professionals with very little time for any additional diversions. My interest in a deeply engaged study was potentially a barrier when teachers realized how much access I was requesting to conduct my study. I began or continued to visit the five classrooms of teachers who agreed (at least initially) to the study. It became evident to me that it was a unique teacher who could maintain a teaching practice grounded in an experiential methodology. I found myself drawn to two classrooms where the teaching was consistently exemplifying an experiential practice.

Selecting the cases. After months of trying to find a sample of approximately 8 – 10 teachers, I realized that I had two exemplary cases right in front of me. However, these two cases did not perfectly align with the original parameters I had defined. One of these teachers, Mr. Brigham, was no longer teaching EOC courses. His teaching load included Honors Physics, Honors Chemistry and AP Physics. Starting with the 2009-2010 school-year, the North Carolina Department of Public Instruction eliminated both the Physics EOC and the Chemistry EOC. As stated on the North Carolina Public Schools website (2011): "Effective the 2009–10 school year, Senate Bill 202/S.L. 2009-451 eliminated funding for most state-administered tests not currently required by federal law or as a condition of federal grants"(North Carolina Public Schools, *Reasons for Elimination of State Tests*). However, Mr. Brigham had taught these courses, as well as Physical Science courses, under the EOC requirement, for seventeen years prior. The other teacher, Mr. Norton, also did not fit my original parameters by virtue of the type of

school in which he was teaching. I had originally set a parameter that my cases be of teachers working in traditional public schools. Mr. Norton's case did not fit neatly in this box because he teaches at an Early College High School, a school designed to explore transformative teaching approaches (New Schools Project, 2010). However, Mr. Norton was teaching EOC courses. I also noted that the principal of Mr. Norton's school responded to my initial email inquiry about my search for experiential teachers: "I wouldn't describe our curriculum as experiential…"(personal communication, August 20, 2010). Even though the two cases I selected did not fit neatly within my originally stated parameters, I determined that the unique nature of the samples and the exemplary teaching would provide the rich data I sought. As described by Miles and Huberman (1994), "Choices of informants, episodes, and interactions are driven by a conceptual question…"(p. 29). I recognized that these two teachers would be the informants who could assist me in answering my research questions. In November 2010, I modified my original proposal to narrow my focus to just these two cases (rather than the larger unspecified number originally proposed) which would allow me the opportunity for greater depth of study. My proposal also expanded to include student interviews and a review of student documents as part of my data set for these two cases. I had already gathered extensive data, in the form of interviews and observations, from these two classrooms but the addendum to my proposal focused my efforts exclusively on these two classrooms going forward. I also submitted and received approval for my revised proposal from my university's Institutional Review Board.

Consent and approval for research. My appended proposal required that I gain principal approval in order to interview students in these classrooms. My email to the principals of each school included the following statement:

> I am a doctoral student at Western Carolina University. As part of my doctoral research, I have been regularly observing in Mr. Brigham's classroom this semester. I have determined, based on my observations to date, that I would like to spend additional time in this classroom and would also like to interview students as part of my research. My research is focused on experiential teaching practices and Mr. Brigham's teaching is offering me a lot of good material on this topic. In order to learn more about how students perceive Mr. Brigham's teaching, I would like the opportunity to interview them, either one-on-one or in small groups. Mr. Brigham has already provided his consent to allow me to collect this data. I am writing you, as the principal, to ask for your permission as well. The interviews with students will require that students have a consent form sent home describing my research.

The two principals provided immediate approval for my more extensive role as a researcher in these two classrooms. They sent their approval, via email, to me and to the department chair of my department at Western Carolina University. Upon receiving the principals' approval, I established which classes of students I wanted to interview. I determined that there was one class of Mr. Brigham's that I had observed on a regular basis and had developed a comfortable presence with the students and therefore could potentially provide me with strong interviews. To date, I had also had the opportunity to observe two of Mr. Norton's classes on a semi-regular basis and determined that I would

be interested in interviewing students from both of these classes. In order to facilitate the process of receiving consent from these students' parents, I set up a time to describe my research to the students and explain the consent form and the assent form. The students who were younger than 18 received an assent form as well as a consent form for their parents to sign. The students who were 18 or over (a handful of students in Mr. Brigham's classroom) could sign their own consent forms. The form asked that students (and their parents) specifically consider and provide consent (or not) to two requests for information:

> Please review and check one box for the two assent items listed below.
>
> 1) I do □ or do not □ give my permission to the investigator to audiotape interviews with me.
>
> 2) I do □ or do not □ give my permission to the investigator to review my written classroom work or written homework.

All of these forms are included in the Appendices: the assent form (Appendix C), consent form for parents (Appendix D) and the consent form for students 18 and over (Appendix E).

Both teachers allowed me twenty minutes at the end of one class period to provide an introduction and summarize my research interests. After I spoke, I handed out consent forms and assent forms. Both teachers agreed to receive the returned forms and hand them over to me at my next visit. I maintained email contact with the teachers to monitor the return rate of the forms. To my surprise, about half of the students returned the forms within two days. The teachers encouraged the remaining students to return their forms and within two weeks, I had the majority of the students' consent forms in hand. A

majority of the students (and their parents) at both schools provided permission for me to both audiotape them and to examine their written work. In one school, I noted that approximately one-third of the students (and their parents) provided me permission to audiotape their students but did not provide permission for me to review the students' written work. Of particular interest to me was the number of students (within this one-third) who were recent immigrants to the United States. I can only guess at why their parents were unwilling for me to review their work but possible concerns could be about exposing their children's language (or other academic) deficiencies to an unknown researcher. Another consideration could potentially be a lack of trust of the research process based on lack of experience or unfamiliarity. I determined that I had received a sufficient number of consent forms to proceed with student interviewing. By this time, I had formed a comfortable relationship with both teachers and they were open to my interests in exploring their teaching practices and spending extensive time in the classroom. Both teachers agreed to provide me with open access to their classrooms, their teaching documents, their planning periods and their students.

Role of researcher. My role in this study was to be an educated listener, observer and data collector with regard to the phenomenon of an experiential teaching practice in the context of secondary public schools in an age of accountability. I have a unique perspective and background on this topic as a former *Outward Bound* instructor and former secondary public school teacher. At *Outward Bound*, experiential teaching was at the core of my instruction. I have a clear preference toward this form of teaching practice and an expertise in this subject that made me uniquely qualified to conduct this study.

As the researcher, it was important to bracket my bias that accountability has negatively impacted experiential teaching in public schools. While the research indicates that this may be true, I had to remain open to hearing the stories and experiences of these two teachers and their students, whatever they were. Their stories and experiences, and my ability to stay open and true to them, provide the framework for developing a conceptual understanding of the practice of experiential teaching in secondary schools. My ability to listen and provide an accurate and honest description was critical. As a case study (of two cases), my goal was not to present my findings as ones that should be generalized to other contexts and other teachers. However, by guarding against bias, triangulating my data, and providing thick descriptions of these teachers' experiences, I sought to produce an accurate and rich understanding of experiential teaching in this particular setting and context.

Data Collection

I sought multiple data sources for exploring these two cases. In order to gain a deep understanding of the phenomenon I realized I needed varied data sources. Initially, I had planned to focus my data collection efforts solely on the teacher through observations, interviews and an examination of documents. Once I narrowed my focus exclusively to two cases, I realized that the perspective of the teachers' students could be a rich data source for exploring my questions. I triangulated my data through the collection of three forms of data: open-ended guided interviews with the selected teachers and their students, observations of classroom teaching and a review of documents created by these teachers and their students.

Interviews. Interviews followed a general interview guideline, but were open enough, in terms of structure, to allow for flexibility while also ensuring that particular key topics were covered. The most significant topics were conveyed through the research questions and explored how these teachers described their practice in the context of accountability, what factors these teachers attributed to their ability to maintain an experiential practice and how accountability demands may have contributed to them changing and adapting their practice over time. I developed a series of questions for the interviews based on my own research interests (as outlined through the research questions) and also adapted a questionnaire used by a doctoral student, B.A. Law, for his dissertation on "Experiential Education and Teacher Education in 1993" (Law, 1993). Law's questionnaire was developed to explore the perspectives of teachers, currently in a teacher education program, about their use of experiential practices in the classroom after a year of training. My focused interview questions for the teachers included five questions from Law's questionnaire which included a total of 10 open-ended questions (see Appendix F). My interview questions for students were developed to explore more deeply about how an experiential practice is implemented at the secondary level. I was particularly interested in how students perceive this form of teaching and what, specifically, the students would report about their own learning in these two classrooms. I developed a list of 14 questions to include as part of a general interview guideline with students (see Appendix G).

I completed pilot interviews with two different teachers, prior to starting my research, to ensure that I was probing in a way that provided for the flexibility I wanted, but also to ensure I was comprehensively addressing my research questions. These pilot

interviews were taped and provided an opportunity to ensure that my interviewing was on target for gathering information. In my interviews I sought a collaborative approach with the teachers and students. With the teachers, I forged an informal and collaborative relationship over the year that I was observing and visiting the classroom. This allowed for more honest conversation and an open environment for sharing. Foley and Valenzuela (2008) describe the value of a collaborative approach when conducting qualitative research: "In short, a more open-ended, conversational interviewing style generated more engaged personal narratives and more candid opinions. It also tended to humanize the interviewer and diminish her power and control of the interview process" (p. 295). A short excerpt of an interview with each teacher is included in Appendix H. I found that my interviewing became more focused, in terms of concepts, as the year progressed. Along with this focus, though, my style became more conversational and less formal. While I felt that the teachers shared honestly with me throughout the interviews, I found that I often wished I had not turned the tape-recorder off at the end of the interview. I learned a great deal from both teachers in the very informal moments after an interview, or while students were waiting for class to start or over lunch in the cafeteria. After these informal moments, I would record my impressions on the tape recorder and review later for possible themes or to prompt further probing at a later time.

Immediately following each interview with a teacher, I wrote field notes and also recorded impressions on a tape recorder, making note of emerging themes.

In total, I conducted seven formal interviews with the two teachers (four with one teacher and three with the other teacher) each lasting between 25 and 46 minutes. I also captured, on audiotape, two short informal group interviews between one teacher and a

group of students. Additional informal (not taped) interviews included conversations walking to and from the cafeteria (and while at lunch) on two occasions and numerous informal conversations before and after class throughout my time in both schools. On a number of occasions I asked for more information from the teachers via email. This information was typically related to more specifics about instruction (details about a lesson or approach I had witnessed or clarifications about case descriptions). These email communications are part of my data set.

I conducted a total of nine formal small group student interviews (five at one school and four at another). Each small group interview consisted of between two and four students. These interviews ranged from 10 minutes to 20 minutes each. Additionally, I captured (on audiotape) three short informal interviews from individual students in one classroom during a down-time after an exam. At one school, I was (completely impromptu) offered the first 30 minutes of one class to talk to the entire class of students as a large group. I used this time to informally inquire about the students' perspective on effective teaching practices. I wrote their responses on the whiteboard while I was talking with them and then captured these student responses in my field-notes. The responses from the students during this brainstorm are included in Appendix I. All additional informal interactions with students were not taped but provided important additional data. After classroom observations, I would make notes in my field journal of student comments during class and student responses to my direct questions.

Observations. I observed each of these two teachers over an 8-month time period starting with the first week of classes in August 2010 (with one teacher) and starting in September 2010 (with the other) and ending in April of 2011. I maintained ongoing

contact with these two teachers, over that time period, almost exclusively by email and occasionally by phone. On an ongoing basis I requested suggested times for visits and typically both teachers responded that I could come any time that I wanted. Both teachers let me know when they had lessons they particularly thought I would be interested in observing. I made an attempt to visit during those class periods if possible. Most of my observations occurred during regular class periods for the entire period; a total of 12 times in one school and a total of 11 times in the other. I made additional observations of partial class periods and also observed at different times of the day in order to gain additional insight about the teachers' interactions with the students. In one school, I also observed students on an exam day (school was on an alternate schedule) and at two after-school "revision" sessions. In the other school, I made additional observations of students in the cafeteria when the teacher was present (on two occasions) and on a Saturday make-up day.

From the beginning of my study, I determined that it would be beneficial for me to focus on one particular class (for each teacher) for the bulk of my observations because I wanted to gain a sense of the development of the curriculum and the development and growth of the students in one classroom over time. This allowed for some comfort (on my part as well as the students) with my presence in the classroom. I visited other classes taught by these teachers in order to see how their teaching practice changed or was altered with different students and when teaching a different content.

I used an observation guideline protocol, developed and used by Ives and Obenchain (2006) called the Anecdotal Record of Experiential Events (see Appendix J) to provide some guidance to my observations. Ives and Obenchain developed this model

in their research investigating experiential practices of high school Social Studies teachers. This instrument focuses on, "three essential elements of experiential education…a) student-directedness b) real-world connections and c) critical reflection" (Ives & Obenchain, 2006, p. 68). Ives and Obenchain field tested this instrument prior to its use in their research and found it to be an effective indicator of a teacher's experiential practice. It provided me with a framework for recording experiential events witnessed in a classroom. I found the form helped me with my initial observations in keying in to "experiential" moments and key experiential practices. However, after several visits, I found the form to be too narrow in scope and perhaps limiting me in what I was able to record during my visits. I realized that my knowledge and background in experiential practice was strong and perhaps the checklist was too limiting for my particular interests and needs. I relied more heavily on extensive note-taking during class time. I would start the observation in the back of the room or to the side of the room, however, the nature of experiential teaching indicated that I spend most of my time moving around in order to see and hear what was going on. Since students were engaged in activity for much of my visit times, I spent most of my time moving around from table to table with my notebook. I attempted to capture verbatim responses and comments from teachers and students, as possible. I also made note of the configuration of the room, activity level of the students and the role of the teacher during the class period. In addition to my field notes, I also made basic sketches to illustrate what I was observing. Following each observation, I wrote follow-up anecdotal notes of my impressions in my field notebook. After observations that I found particularly interesting, I recorded my impressions on the tape recorder.

Examination of documents. In addition to observing and interviewing, I examined documents created by the two teachers and documents created by students in their classrooms. I attempted to collect a variety of examples of documents to illustrate the complexity of what I was witnessing in the classroom. I also adapted the type of documents I requested based on information I was gathering from the teacher (via interviews and observations). For one classroom, the document samples I collected from the teacher include a large number of teacher-created lesson plans, examples of early drafts of these teacher-created lesson plans, teacher reflections about the lesson plan (after the lesson was conducted) and instructions given to students for completion of projects. From the students (in this same classroom), I collected a sampling of exams (from different time periods) for three students. These exams include comments from the teacher as well. I also collected a report created by students after completion of a large group project. I was given (by the teacher) photographs of students engaged in projects and participating in a "white board" wrap-up session (an assessment given by this teacher on a regular basis).

From the other classroom, I obtained a teacher-created lesson plan template, teacher-created lesson plans, a variety of documents from other professional sources used by this teacher for lesson planning or for direct use with students, rubrics for grading (created by the teacher and also borrowed from other sources for use by the teacher), a project planning form for students, notes for students on how to conduct a lab experiment, and a student worksheet for learning vocabulary and completing a lab. I also obtained (from the students), a teacher-created test example, a worksheet example, a

short report, a table created as part of a lab and an EOC practice test. I either made copies of these sample documents or the teachers gave me or emailed me the original document.

These documents provide further data for exploring the teaching practices of these two teachers. I found that it was helpful to ask the teachers to talk about these documents (typically informally as they were handed to me) in order for me to gain a true sense of how the document was used and how much the teacher adapted it to fit his needs. The teachers gave me free access to review and copy any of their teaching materials or resources. I had access to documents created by most of the students. One teacher's students gave me nearly unlimited (except for two students) access to any of their materials and a handful of the other teacher's students placed some limits on my access through not agreeing to the portion of the consent form that allowed me to review and copy their written work. The documents along with the interviews and observations provided the triangulation necessary to gain an in-depth perspective on my research questions. I have included a lesson plan obtained from each teacher in the Appendices: Appendix K (Mr. Norton) and Appendix L (Mr. Brigham).

Establishing Credibility

While the large amount of data I collected deepened my understanding of the phenomenon, it equally challenged me to take a stance that objectively considered the credibility of the accounts given to me by teachers and students alike. The long-term nature of my relationship with the two teachers helped to establish a grounded sense of what was credible about their accounts and what might need more scrutiny. It would have been difficult for either teacher to manufacture a persona or to put on an act about their

teaching, given the large number of encounters I had with them over the eight months I was in and out of their classrooms.

I had greater concern about the credibility of the students' accounts. This was due to the limited relationship I had forged with these students, with the location of the interviews and the nature of the relationship of students to teachers; a relationship that is complex given the evaluative nature of the role of a teacher. I attempted to mitigate these concerns by opening my interviews with reassurances about my interests, which were about learning about teaching practice and reminding them that I would maintain anonymity in reporting their responses. The interviews took place within the school building, and depending on the day, they occurred in either a conference room adjacent to the classroom, a science teacher workroom or on one occasion, at the end of a quiet hallway. I also had numerous short informal conversations with students throughout the duration of this study. These occurred while students were engaged in activities in the classroom, in the hallway between classes, in the cafeteria and when students were waiting for the next period. On two occasions I was able to capture (on audio) an informal conversation between a group of students and their teacher at the end of a class period. Even with these varied opportunities I had to hear students' perspectives, I felt a strong need to consider their responses carefully with the concern about potential barriers to encouraging truly honest responses to my questions. In a chapter entitled, "Is Your Informant Telling the Truth," Atkinson, Coffey and Delamont (2003) describe the significance of this sort of scrutiny when using informants for research.

> It is surely a far more productive research question to ask ourselves, not, "how do I know she or he is telling the truth?," but rather, "how does he or she try to

> persuade me of the truthfulness of this?" If the perfect "truth" of an account is ultimately unknowable, there being no neutral gold standard against which accounts can be evaluated, there is greater analytic advantage to be gained from examining the kinds of plausibility and credibility devices an informant uses. (Atkinson, Coffey & Delamont, p. 123)

This focus on these "devices" is what guided my analysis of the interview transcriptions, with a particular focus on these concerns in my analysis of student interviews.

Member checking. I engaged in a member checking process in three ways. This happened first, by sharing raw data (my transcriptions) with the two teachers prior to my analysis of the data. I also asked the teachers for their feedback on a document summarizing my findings (Chapter Four) from the study prior to publishing my data. And finally, when I created vignettes about their classrooms or their teaching, that included content or specific directions that I was not clear about, I provided this document to the teacher to review for accuracy.

Triangulation. As Lincoln and Guba (1985) describe, triangulation of data serve to improve the validity and reliability of a qualitative study. Marshall & Rossman (2011) underscore the value of a triangulation approach in qualitative research: "Designing a study in which multiple cases, multiple informants, or more than one data-gathering method is used can greatly strengthen the study's usefulness for other settings" (p. 253). I triangulated my data through the collection of three forms of data: open-ended guided interviews with the selected teachers and their students, observations of classroom teaching and a review of documents created by these teachers and their students.

Intercoder reliability. Marshall and Rossman (2011) describe how "blind" reviewers can assist in the coding of data. The use of reviewers can offer a check on the consistency of the meanings and possible application I am asserting from the data analysis. Additionally, reviewers may offer a nuanced understanding or a different view that opens up new ways of understanding the data. I utilized "blind" reviewers in two different ways in my data analysis process. First, the qualitative research group (QRG), in my department at the graduate school, acted as blind reviewers of interview transcriptions of both students and teachers. At one of the QRG group's monthly meetings, students reviewed the transcriptions and provided written comments in the margins. I collected all of these documents and made note of the suggested themes. I added these themes to my list generated in step one of the coding process as discussed in the data analysis section later in this chapter. The second way I employed intercoder reliability was through the use of professional colleagues as reviewers of my transcriptions. I asked three colleagues to read three different teacher interview transcriptions and write comments about themes they noticed in these interviews. These themes were then added to my original list of themes as part of the four-step coding process described in the data analysis section. I highlighted the rare instances in which these reviewers offered themes contradictory or obviously different than the themes I was asserting.

Audit trail. An audit trail is another important component of a qualitative study that can support both the credibility and the replicability of the research. Marshall and Rossman (2011) underscore the value of keeping all data in an organized and easily retrievable format so that is available for others to inspect. The collected data from my study include the following:

- electronic files of audio taped interviews with teachers and students and the associated transcriptions of these audio tapes;
- observation notes from each classroom that were initially written in a field journal and then transferred to individual folders for each respective teacher;
- completed observation forms of the "Anecdotal Record of Experiential Events" form from each classroom (Ives & Obenchain, 2006);
- documents produced or used by each teacher in the classroom for teaching purposes;
- selected documents produced by students in the classroom;
- email correspondence with the teachers throughout the time of the study and
- email correspondence with other teachers as part of my initial search for cases.

I organized this data into individual files and will store the files in a locked cabinet for five years.

Data Analysis

I engaged in data analysis throughout the research phase of this study. This allowed for an exploration of emerging themes and an opportunity to probe and seek answers as the research process unfolded. After an interview, I transcribed the interviews and follow an open coding system for exploring the data. After an observation I reviewed my observation notes, making notes in the margins and circling themes related to my research questions. I followed this same process with the documents I secured from teachers and students. I would initially scour these documents searching for themes related to the description or implementation of an experiential approach based on key aspects of Kolb's model (Kolb, 1984; Kolb, Boyatis & Mainemelis,1999) and the

principles of experiential teaching provided by AEE (Association for Experiential Education, 2011, "The Principles of Experiential Education"). I also focused my analysis on themes related to pressures to change or adapt practice based on accountability as well as school and teacher factors related to a teacher's ability to maintain an experiential practice.

The coding required a four-step process of first doing multiple readings of the transcriptions, observation form, anecdotal field notes and documents. As I read, I noted themes in the margins. I added any additional themes suggested by my blind reviewers and also noted if the reviewers repeated themes I had already noted. Step two was to transfer these themes to a document and sort them under broad headings of "Teacher Beliefs about Teaching", "Influence of Standardization", "Factors That Support Experiential Teaching" and "Factors That Challenge Experiential Teaching." These categories were each further subdivided into "Teacher" (from teacher perspective), "Student" (from student perspective) and "Researcher" (from my perspective). Step three required me to condense themes that were repetitive or similar. I color coded and transferred these themes onto a large poster board (one for each teacher) that also included my research questions in the center, as a grounding point. This provided a very helpful visual representation of the data. A photograph of one of these poster boards is included in Appendix M. My final step was to extrapolate the most salient themes emerging from this data and to compare these themes with what is described in the research. My findings are presented in Chapter Four.

CHAPTER FOUR: FINDINGS

Chapter Four provides a deep description of the findings from my study of two teachers' experiential praxis. The descriptions are based on analysis of multiple interviews with students and teachers, an examination of documents produced by students and documents produced by the two teachers and field notes from extensive observations in the two teachers' classrooms. I begin the chapter by describing each case separately. For each case, I provide a description of the demographics of the school in which the teacher works and then an in-depth portrait of the individual teacher. After a deep description of the two cases, I selected the themes that appear most prominently. In some instances, one case more obviously represents or highlights a particular theme and this is noted in my analysis. In my summary, I categorize the themes under two broad headings of, "factors that support" and "factors that challenge" an experiential practice.

Case One: Mr. Brigham at Westridge High School

Westridge High School is one of six high schools in a mid-size school district in western North Carolina. According to state documents about the school, (for the 2009 – 2010 school - year), Westridge had a student population of 1,108 with 93% of these students attending on a daily basis. The average class size (across courses) is 23.5 students compared to the state average of 18.8 students per class. In 2009- 2010, Westridge received the designation as a "School of Distinction" (the third tier down in the list of designations) based on school-wide test results. A "School of Distinction" is one in which at least 80% of students are considered at grade level (based on test results). Under *No Child Left Behind* designations, Westridge did not make "Adequate Yearly Progress" based on target goals the state set for school progress (and subgroups of

students within schools). Westridge has a total of 67 classroom teachers; 98% are fully licensed, 40% hold advanced degrees and 24 are national board certified. These qualifications are higher than the state average in all areas with 92% fully licensed, 26% with advanced degrees and an average of 9 teachers per school with national board certification across the state. More information about the school is provided through a local public school directory and indicates that 29.2% of students receive free and reduced lunch and that students who are white are overwhelmingly the majority (92.2%) at Westridge. The next largest racial group at Westridge is Hispanic (4.1%).

The mission statement for Westridge High School, posted on the school website is, "…to establish a strong foundation for life-long learning by nurturing, guiding, and challenging all students to become responsible, productive members of society." The data provided by state documents and the school's mission statement provide a one dimensional snapshot of this high school. A visit to the school provided me with a more detailed picture of a school that felt orderly and focused and also bustling with extra-curricular activities. A walk down a long corridor of classrooms, from the main office to Mr. Brigham's classroom, offered a multi-layered picture of a high school with one foot firmly in the past and one foot tentatively stepping into the 21st century. A display of student artwork as well as photos of the school's top scholars welcomed me, followed by music emanating from the auditorium and sounds of frivolity from the drama room. The JROTC office was busy with student activity and glimpses into open doors of classrooms offered views of teachers in front of the room with students seated in rows of desks; quiet and focused. The clean hallways, flanked by lockers, were lined with posters of students' academic work and also posters encouraging student participation in various extra-

curricular activities. One classroom I passed on the way to Mr. Brigham's classroom is labeled as the "NC Virtual High School"; inside is a room full of computers with a handful of students at work on individual computers. Overall the school left an impression of a safe, orderly and inviting institution.

Mr. Brigham's background and introduction to teaching. Mr. Brigham came to teaching from an entirely different professional field, as a physicist in the oil industry requiring expertise on international projects. His educational background is extensive: a B.A. in Physics, an M.S. in Geophysics, an M.Ed. in Science Instruction and an Ed.D. in Educational Leadership. Mr. Brigham entered the field of teaching after a successful first career as a physicist. Mr. Brigham has been a National Board Certified Teacher since 1998 (renewed in 2008) and received the prestigious Presidential Award for Excellence in Math and Science Teaching (PAEMST) in 2007. PAEMST is the highest recognition that a kindergarten through 12th-grade mathematics or science teacher may receive for exemplary teaching in the United States. In addition to honoring individual achievement, the goal of this award program is to exemplify the highest standards of mathematics and science teaching (Presidential Award for Excellence in Mathematics and Science Teaching, 2011). Mr. Brigham actively seeks out grant opportunities for purchasing equipment for his classroom. He reports that he receives at least $5,000 annually and at the time of this writing was awarded a prestigious $175,000 grant to advance inquiry-based teaching in his school district. The other grants he has received for his classroom supplies and equipment are so numerous he isn't able to easily recall them all by name.

Mr. Brigham's resume alone portrays a teacher who approaches his professional life with serious intention and focus. However, talking with Mr. Brigham and seeing his

classroom in action provided an opportunity to explore his unique teaching practice and gain an understanding of his singular extraordinary commitment to helping students learn and grow. Mr. Brigham described his introduction to the field of teaching in this way:

> I think we've talked in the past how I was a physicist in the oil industry, and how the company that I worked for used to encourage its white collar folks to get out in the community and do something -- to kind of really raise the public opinion of the company more than anything. I was going to at-risk inter city schools taking equipment. I called it "Science Road Shows"… Then I decided I wanted to be a teacher—the idea was for a very short time, and then I was going to go back into the oil industry.

After completing a Masters in education degree in Texas, Mr. Brigham planned on finding a teaching position, at least for the short-term. When he moved to North Carolina in 1984, he had just completed his masters program. After a brief late-summer impromptu interview with a principal and the superintendent of a rural mountain school district, Mr. Brigham was hired, through lateral entry, to teach the one physics offering at a high school in the district. He believes that this part-time assignment was ideal for working out his approach to teaching the NC standard curriculum. Already as a first year teacher, he had a clear sense of how standardized testing fit into his teaching philosophy:

> When I was first hired into teaching, I had already investigated the State of North Carolina; I knew that they had a high stakes testing. I was very honest; I was in my one and only interview, it was with a principal and a superintendent, and I said, I consider it a possibility that you will fire me some day over testing. I'm going to make—I'm going to try and make learning physics—at that time I was

> being hired to teach only physics—I'm going to make learning physics my only priority. My students learning physics is my only priority, and I said, we'll let the test scores fall where they may. And I said, I honestly believe—I never really had a shortage of confidence…that the test scores would be great…so often the response to high stakes testing is to push teachers, particularly new teachers, toward drill and kill, toward more mediocre forms of teaching.

The students responded to his teaching and Mr. Brigham reported that his students were exceptionally successful on the EOC tests: "My first year, I had twenty-eight students; we doubled the school's average EOC scores. I never looked back. I truly never thought about them [the EOC's] again." Mr. Brigham was hired full-time at this same school, the following year, and then spent the next 15 years there teaching physics, physical science, chemistry and earth science. He reported that his students continued to be successful on the EOC but, more importantly, his students were successful at learning. He frequently taught ninth graders (not honors or AP) at this school and reported that he taught freshmen the same way he teaches all students. In fact, he stated that he finds freshmen to be, "…more malleable and pick up on my methods quickly." He maintains strong relationships with many of his former students and tracks their academic and career choices after high school. Of the graduates he has maintained ties with, he counts two completed doctorates in physics and two more in progress, 9 undergraduate physics majors, 5 doctorates in pharmacy and 3 undergraduate chemistry majors.

Mr. Brigham accepted a teaching position at Westridge High School in 2008. He was actively recruited to teach physics and chemistry (EOC courses at the time). Last year he was elected by his peers to serve as department chair. He explained that he was

hired by Westridge to bring up test scores, that, at the time were hovering around 20% of students achieving at grade level (in chemistry). He was also hired to increase enrollment in the upper level physics courses because enrollment was decreasing each year, with the most recent physics class only drawing 15 students. He describes feeling a lot of pressure, in his first year, to meet the expectation that students perform well on the standardized tests. However, even with this pressure, he clearly stated that he did not change his teaching as a result. He described the pressure he felt from the administration in that first year:

> I was told pretty bluntly: "You are here to raise the EOC scores, and to encourage enrollment into AP level courses." It was much more stressful then, only until the first round of scores came back…Before I came they had twenty six percent at grade level. My first year was eighty-eight and a half. I believe that if I can teach them to think about chemistry or physics, everything else takes care of itself.

Mr. Brigham's course load this school year includes Honors Physics (juniors and seniors), AP Physics (seniors), Honors Chemistry (sophomores, juniors and seniors) and AP Chemistry (sophomores, juniors and seniors), in addition to his responsibilities as department chair. A visit to his classroom reveals a typical looking science lab classroom with lab tables along the walls and rows of desks facing the front of the room. In the front of the room, Mr. Brigham has a desk and a long table running the length of the front of the room. The desk and table are often covered with stacks of papers, open books and various types of science equipment, depending on the day. The walls of the room are obscured by drawers and cabinets of neatly organized equipment and materials running from the floor to the ceiling. Personal photos and small posters and signs, made by Mr.

Brigham and his students, are taped above the whiteboard in the front of the room. One sign, obviously hand-written by a student, reads, "Don't mess with THE BRIGHAM!" Another typed sign reads, "I'm a POGILITE: Process Oriented Guided Inquiry Learning Instructor." I inquire about the POGILITE sign and Mr. Brigham described it as guiding his teaching philosophy:

> I put it up there so students ask. I want them to understand what I'm trying to do—I want them to see there's a philosophy at work here, there's a strategy. I liked POGIL - process oriented and guided inquiry learning. The concept which is primarily in chemistry but you can take the idea of process oriented inquiry—guided inquiry - and apply it across the board.

The POGIL approach focuses on student-driven inquiry and is well aligned with an experiential philosophy of teaching and learning. I include a more in-depth description of the POGIL teaching philosophy in Chapter Two.

Structure of Class. Westridge High School runs on a block schedule, meaning classes are scheduled in blocks of 90 minutes each. Students at Westridge take four 90-minute block classes a day. A typical day in Mr. Brigham's classroom consists of the following four components in this order:1) an opening to the class that features an open-ended question and answer (Q & A) period led by Mr. Brigham 2) a short component of teacher directed instruction 3) a longer student exploration period and 4) a short wrap-up session often led by the students.

Question and answer period. In the Q & A opening, Mr. Brigham asks students for their questions, "Do you have any questions that will help you on the test?" or "What questions do you have?" or "Any questions about what we saw yesterday?" Mr. Brigham

was open to any questions the students offered as long as they were, at least tangentially, related to the physics or chemistry content. A female student in his honors Physics class described these Q &A sessions:

> We do the questions at the beginning of class, which I think get us started on our own thinking. He allows us to ask whatever we want to know about. I think that allows us, first of all, to connect with each other a little bit more. We all kinda know what each of us is thinking about. The normal everyday questions we have - everything usually connects to things we've learned about in class. It makes us easier to open up and learn things for ourselves that way.

A senior described how these Q & A sessions create an open climate in the classroom:

> Before we ever knew him, he asked if there were any questions, the first time we walked in the door. That's the way it's always been. That's just the way you expect it to be. On occasion you can get sorta off of what you're talking about, but usually your questions are what you're working on, or they relate in some way to what you're talking about. It's not necessarily a bad thing that sometimes they get off track because a lot of times you learn stuff.

Teacher directed instruction. After the initial Q & A opening, Mr. Brigham used his booming voice or a short shrill whistle to focus the students' attention to the next phase of the class; a short period of teacher directed instruction, in which he either reviewed previous material on the whiteboard at the front of the room or provided a physical illustration as a representation of the content they were about to explore. During this time period, Mr. Brigham listened carefully to student questions and misunderstandings. While he had a very clear lesson plan organized for each day, the

questions from students in this time period often drove the specific emphasis of the bulk of the remaining class time. During this teacher-directed time, he prodded students to ask questions, probed their understandings to explore what they were missing and attempted to engage all the students in various ways. Based on the information he received, he set up the remainder of the class to emphasize what seemed to be missing or what the next logical step was for student exploration.

Student directed exploration phase. The exploration phase was the largest section of time allotted during a typical class period. Mr. Brigham provided students with a question for exploration or a problem to solve and a brief description of materials necessary for exploring the problem. For example, on one occasion, he told the entire class that they were going to work as one large group and answer the following question: "How can we find the velocity of the ball when it leaves the bat when it is hit?" For this problem, he gave some basic logistical information up front about how the students were to work together as an entire class, that a report would be due explaining their answers and that this report would be submitted to his colleagues in the oil industry (for the assessment). He gave them several days to complete this task. Mr. Brigham gave very few additional direct instructions and students went straight to work trying to first organize themselves and then, through a series of trial and errors, attempted to answer the question. Mr. Brigham described how this student-directed component of his teaching evolves over the course of a semester:

> I love the idea of presenting today's problem to the students and saying, solve it in whatever way you can. By the time they've been in here half a semester I can just

> say, you know where all the equipment is, use what you need. I think it really puts the onus of thinking squarely in the lap of the student. That's what I want most.

One student described this style of teaching and learning as hands-on:

> As far as the way he goes about doing labs and stuff and actually puts what you're thinking about in your head, actually out in front of you. I really like hands-on. I really do like that. I don't know, when you put it on paper, it doesn't really make sense to me. That—I'm guessing—probably is the way with a lot of kids. When you actually see it for yourself and how it would result in the real world, it makes a lot more sense why you would need to use it or why not use it.

Another student explained the significance of the self-directed exploration time:

> He lets you play around with it first so you could just try things. Often you'll just sit there like—I don't know what to do. Then when he comes around and explains it, now that you've already played with it -- it makes it easier to pick up, once you actually know what to do.

Wrap up of class. Following the 45 minute to one-hour long student-driven exploration time, Mr. Brigham provided a short wrap-up time period that allowed for student demonstrations of knowledge, student summarization of knowledge or for more student questions. These wrap-up sessions were often directed by the students and regularly took the form of what Mr. Brigham called, "whiteboard sessions." These sessions required that each small group write out their findings (from their exploration) on a transportable whiteboard. These findings came in the form of drawings, definitions, and equations. For whiteboard sessions, all students came together in a large circle and then shared their findings with each other by presenting their whiteboards one by one.

One student acted as the presenter of the findings. As Mr. Brigham described, his role in these whiteboard sessions diminishes over time. He expects that the students teach each other and that they develop the comfort to question each other's assumptions and conclusions. Mr. Brigham starts the year as a strong contributor in these group wrap-up sessions and then slowly pulls away as students develop confidence with the process.

> By halfway through the semester, most of my classes will be pretty good at it, where they stop looking at me. I don't want them to look at me. I want them to reflect on us as a kind of learning group and be just as likely to turn to Johnny and say, wait a second well, that would mean—and let it take off from there.

The role of the teacher. Mr. Brigham described his role in the classroom as primarily a "prodder of thinking." While he recognized that there are times that he needs to deliver content in a more traditional straight-forward manner, he is opposed to what he calls, "information delivery." He described his intentional decision to sparingly use an "information delivery" style of teaching:

> …what I would normally consider to be lecture style activities, is more of a discussion. Just try and pose the questions and start the discussion moving. I don't believe in information delivery. Sometimes you have to -- there's just new material and they don't have the pieces to move with you.

As I observed on numerous occasions, the emphasis in his classroom is on questions. The questions in this classroom were posed by the students to Mr. Brigham as well as questions Mr. Brigham continually posed to the students during the class. His most frequent response to a student question was the posing of another question. In interviews, Mr. Brigham and his students highlighted the role of questions in the classroom on

numerous occasions. Mr. Brigham described the central role of questioning in his philosophy of teaching and learning:

> The other thing that I think is the primary role of the teacher is to ask questions. I think the emphasis on questioning is so under-emphasized in teacher prep courses. I think every teacher ought to take a course or two in Socratic questioning strategies, discovery-style questioning… So often I truly believe the students do know…They just haven't taken the time to really think through the bits and pieces that they need to sort out… I try to see myself as a prodder of thinking.

One student described how she understands Mr. Brigham's role in the classroom:

> You'll never just see him sitting at his desk. He doesn't grade during our things. We don't do bookwork. He's walking around if we're doing a lab, talking to people – explaining things. He's lecturing – he's never just sitting around doing his own thing.

His questions often encouraged deeper thinking or greater explanation from students. They frequently pushed students into higher order thinking. Upon examination of copious field notes from observations, I noted that questions from Mr. Brigham were, by far, the most common form of interaction he had with students. A sampling of the type of questions he asked during my observations:

- Which answer seems more reasonable? Look at the drawing and decide for yourself.
- What do you suppose is going to happen?
- What do you imagine?
- Why is this happening?

- Does this remind you of something else we have talked about?
- We need to think our way through this – how does a person apply torque?
- What makes this equation more difficult?
- Do you know the method for figuring this out? You have a little more time, see if you can figure this out.

Mr. Brigham realizes that he cannot always play the role of the questioner and he does use class time, for short periods of time, to engage in "stand and deliver" style teaching when he sees that students clearly do not have background information. However, he also sees a role for students first playing with concepts before he offers any specific information or content. One student described the value of learning this way:

> We did a lot of wiring circuits and stuff. I felt I learned a lot more from that than I would have just being told it. Cause he really didn't tell us much of anything. You learn a lot more through just taking the meter and checking different things. I found myself, as I was going through the test, thinking back. Now, when I was doing this, this is what I had to do. I feel like that sticks with you a little bit better than saying, here's what you need to know; this is how you do it.

The role of the student. In addition to a clear understanding of his role as the teacher, Mr. Brigham has a clear understanding of the role of the student in his classroom as well:

> I don't think that I'm creating PhD physics students. I am trying to create students who do well in college and life in general…we have to break this pattern where school is this sequence of hoops that you jump through.

Given Mr. Brigham's non-traditional teaching role in the classroom, students were thrust into a non-traditional role as well. The students I observed in Mr. Brigham's classes were primarily juniors and seniors taking honors and AP courses. The majority of the students in the classes I observed were college-bound and appeared to have strong academic backgrounds. Some admitted to me that they were not highly motivated as students but they leave the impression of being mature and disciplined learners, as a whole. Even so, his students shared that it took some adjusting to the intensity of a "Mr. Brigham" class:

> I think it's [the student's role] serious. In some classes you might goof off, or you might text, but in that class you know you have to pay attention. Every day you're covering new stuff. If you're not there one day, you're going to miss stuff. You're going to have to come in before or after class and learn it.

Another student described the impact of a student-centered learning environment on his learning:

> You learn a lot about responsibility for what you're doing. A lot of people, myself included, I went through all of high school, I still do most classes, pretty much—you don't have to do a whole lot to get through high school. It's all BS pretty much - I mean to be quite frank with you. A lot of students that never had the opportunity to have a teacher [like Mr. Brigham], they get to college and just are overwhelmed. I feel like I'm better prepared now.

My observations revealed students who were focused and on task during every phase of a typical class session. Rarely did I witness any student off task in conversation or not paying attention to whatever was being discussed or explored in the classroom. The students demonstrated a sense of joyousness balanced with a focused intention on

learning. Frequent laughter indicated an open environment for playfulness alongside a serious focus on the task at hand. I corroborated this in my observation notes from November 3, 2010:

> For the most part, every student is actively working to solve problems at their desks – calculators in hand, pencils active. The teacher asks for understanding verbally but doesn't check each student's paper or ask students to turn in their work. Teacher expects self-regulation and that the students will ask for help (and show up for daily available tutoring sessions).

Students are charged to be responsible for their own learning and to speak up (in the form of questions) if they do not understand. Questions I heard from students directed to Mr. Brigham in his honors physics class:

- Would different octaves resonate differently?
- Why, with radio, if you have carrier and frequency, they don't interfere with one another?
- Why is this opportunity better if you can't move faster?
- Was that a, "I'm on the right track kind of look?" or a, "I don't know what you're talking about kind of look?"

And questions directed toward other students (typically within small group settings) in this same physics class:

- Should I write what we did [on the whiteboard] or just write the data points?
- What do you want to work on?
- Is everyone good on this? Can we move on?
- Wait, so this is how it works?

- Why is nothing turning on? Should we ask Mr. Brigham why that happened or move on?

Students were given frequent opportunities to ask questions within the classroom and also offered extensive after-school time to "revise." Mr. Brigham offers what he calls "revision sessions" on a daily basis before school and after school. In these sessions, he is available for students to work out gaps in their understanding as well as to revise tests or exams. Mr. Brigham has high expectations for student participation in these sessions and a clear philosophy about the role of the student in a revision session. He expects students to have done a significant amount of background work before coming to a revision session. The session, in his mind, is for extending students' knowledge and fixing where students have gaps in their understanding:

> With revision I don't want to sit down first of all and try and teach Suzy step one through step ten. I want to be able to say, look I'll help you all you want, but I want you to have some background knowledge; go watch the podcast. Generate your five big questions. Bring them to me. We can have a discussion rather than me telling.

Another unique aspect of Mr. Brigham's teaching style is in the expectation that students join a learning community. He recognizes that students can learn a lot from one another and understands that a group working well together can achieve at a higher level than an individual could alone. Mr. Brigham's approach of requiring students to solve problems in groups, including for exams, also stems from his understanding of what the professional world requires. As an example, on one chemistry exam, Mr. Brigham placed students in small groups and gave them a series of questions to answer together. In

addition to the high level questions he asked the students to answer as a group, he placed emphasis on the group aspect of this project in two ways: 1) He asked students (individually) to select and name the 2 primary leaders in their group and turn this in along with their answers and 2) He required that each student write his or her own answers to the questions but also stated: "I am aware that these answers may be very similar to other answers from your group – that is fine!" This indicated his emphasis on students working together to solve problems but also highlighted the importance of the group and the roles that people play in the group as part of the learning experience. Students frequently mentioned the challenge and the value they found in Mr. Brigham requiring them to work closely with others in the class. One student described how she learned about working with others on one group assignment:

> Some people aren't meant to be leaders; some people are. Some people who don't want to talk, [they had] their opinions…They had the right solution but they didn't say it. We had to learn to step aside with some people – 'What's going in your head? We need to know.'

Another student recalled how Mr. Brigham related the value of working with others: "He told us [about] his real job that he used to have in the oil industry - used to have to set aside your differences with everybody. Just focus on getting the job done."

Lesson planning. Mr. Brigham's teaching, which emphasizes impromptu learning opportunities and de-emphasizes a traditional "stand and deliver" teaching style, could be construed as not requiring a lot of preparation or pre-planning. In fact, Mr. Brigham spends a tremendous amount of time thoughtfully considering his lessons even after 18 years of teaching. He has developed a complex 3-step planning process over many years.

He described how his lessons continually evolve and the fact that only about half of his lessons survive from year to year. He organizes his lesson planning into 3 stages and, for the most part, they are handwritten and placed in large 3-ring binders. One of the layers is now primarily stored electronically. A look at Mr. Brigham's binders revealed tattered pages, pages ripped out, pages taped and stapled in various places and lots of hand-written notes of reflections from teaching the lessons. The first layer of the process starts with a framework and looks much like a standard lesson plan. In this first layer, he consults the NC standard course of study and focuses on the key concepts he wants to convey. The next layer is when he takes apart the framework and reconsiders it for the particular group of students he is teaching:

> They are always re-written two days before I'm going to teach that section…I look at the framework and say, this is what I want to do. These are the labs I'd like to do; this is how in the past I've had success helping students do it. Then I sit down and say, where is this group of students? What do I have to do? What words am I going to have to say? What am I going to have to connect to something they've already done?

The third layer is what he described as a logistical layer in which he writes the technical equipment needed for labs and makes notes to himself about the smaller details of what not to forget when planning a lab including basic things such as, "check all the batteries before the lab…". A review of the hand-written documents in step 2 of this overall process, revealed numerous reminders, hand-written notes, diagrams and sketches by Mr. Brigham. As he described it, he sees lesson planning as an ongoing exercise of considering the standard course of study and then figuring out where his students are in

terms of conceptual understanding and skill level. He frequently rips out entire pages of his lesson plans, writes in red marker over areas that don't work, staples in new sheets and introduces new labs as he develops them. The work is entirely his own with very little obviously borrowed from other sources. Although he frequently consults many resources to gather ideas, he ultimately designs and implements entirely unique labs for his students. An example of one of Mr. Brigham's lesson plan is included in Appendix L. Pointing to one set of lesson plans, he explained:

> In fact, these [lesson plans] are all brand new. I realized that this group in AP physics right now, they're strong algebraic calculators, but they're weak conceptual thinkers. I threw in a bunch of expressions of algebra showing the concepts to see if I can play to their strengths**.**

Assessment. Mr. Brigham's approach to teaching means that he is in a constant state of assessing students. In fact, it was difficult to see any aspect of his teaching that did not centrally highlight assessing where students are in order to push them to the next level. Mr. Brigham engaged in both summative and formative assessment, however, his philosophy is weighted heavily in favor of formative assessment. His conception of learners as being always in the process of evolving toward greater understanding and greater knowledge means that he sees his students in this formative light. In addition to questioning as a central premise of his teaching philosophy, I saw assessment of student knowledge and thinking skills as the other crucial component of Mr. Brigham's philosophy. His lesson planning was motivated by a desire to understand what it is the students know and where there are gaps in understanding (a key aspect of formative assessment):

> My questions spurring an experiential lab are not just to get them thinking. I hope that's always true. It's really to figure out, "Where are you?", "Are you pretty tangled up here?" "Is there something we need to—some misconception that you're working on or within that we've got to break down?"

His students described this atmosphere as one in which they are always pushed to know more and do more. They recognized that there is not a finite point they are striving for but an ongoing assessment of what they know, where there are gaps of understanding and where there are areas for more growth. As one student described it:

> The thing that Brigham's always told me…is that—a ten on a test, it's not the best answer there is. It's just the best answer there was in the class. So even if I got a ten on this, I know there's still more to be learned. That's what motivates me. 'Wow, there's so much more I could have learned right there…I think it's all about learning more.'

The emphasis on assessment in this classroom did not translate to an emphasis on grades. In my discussions with students and Mr. Brigham, there was a lot of talk about the concept of grades and the inauthentic nature of the traditional public school grading system. Mr. Brigham places extreme value on learning while also completely de-emphasizing grades. He sees grades as potential barriers for learners and as not holding any significance for a teacher who truly wants to know how much a student knows or is able to do. In my numerous conversations and interviews with Mr. Brigham as well as in interviews with students, grades and students' relationship to them were a consistent theme. Students described how Mr. Brigham does not like grades and how they were

admonished if they even brought up the "p" word. The "p" word, in this instance, referred to points and a typical student's constant pursuit of points (toward a final class grade):

> …If you are revising a test and you ask him, 'how can I make this grade better?,' he'll get upset. He wants you to ask him, 'how can I better understand this?' He doesn't want you to care about the grade; he wants you to care about understanding it.

Mr. Brigham walks a constant balancing act with regard to the use of grades in his classroom. He is required to assign grades as part of teaching in public schools, parents place emphasis on their students' grades and students are (for the most part) motivated by this external validation. And, contrary to his core philosophy, Mr. Brigham does, at times, use grades to motivate, in some instances. He described how he uses norm-referenced grading in his classroom as a way to push students to challenge one another:

> …They are all graded against one another. It's norm-reference grading, and the norm is established within the classroom. So if the best in the class is studying more and more and more, you've got to keep up with them. People who study the same, their grades typically go down.

In one impromptu discussion between Mr. Brigham and three students (at the end of one class period), I heard some light-hearted discussion about this balancing act with regard to grades. The discussion focused on how students attend revisions and perhaps hope that their grade will improve as a result, however, they are well-trained to not utter the "p" word. One student explained how they maneuver around the "p" word when summarizing to Mr. Brigham what they have learned in a revision session: "I think I've highered my

knowledge" And then Mr. Brigham's response to this student's insight: "I hear that a lot: 'Here's my test -- by the way, I think my knowledge has gone up a lot'."

Standardized curriculum and accountability. It was clear that Mr. Brigham thoughtfully considered the standardized curriculum and shouldered the responsibility to ensure that it was addressed:

> I really do believe in the sanctity of covering the material. I wish it were deeper and a little less broad. I have two of the four year rotations where the state re-writes the curriculum. I've been on that panel, so I almost by definition have to support the idea…again we just keep trying to make it too broad.

Mr. Brigham's teaching does not fit into what would typically be described as a standardized format. He refuses to teach from a textbook and in fact, many of his students admitted that they have never opened the assigned textbook for the class. Mr. Brigham designs all of his own lessons and labs and often, impromptu, I witnessed him change course within a class period and proceed without a set lesson plan. However, he still finds value in using the standard course of study as a framework for his lessons. He sees it as holding him responsible for continuing a long chain (K-12) of knowledge and doesn't want to be the one leaving gaps in students' knowledge.

The two areas in which a standardized curriculum is contrary to Mr. Brigham's philosophy is in its compartmentalization of subjects and pacing of courses. He finds that pacing requires broad coverage of material and runs contrary to his "figure out where the gaps are and address them" approach. He described the pain he experiences when he has to move on to new content when he knows students have gaps in their knowledge:

> I didn't like leaving a gap behind. It just seemed absurd to me…Ok, we taught this material today or this week; we tested it on this one day. Who knows if you personally had a good day or a bad day?

He struggles continuously with the pacing required by a very broad framework laid out by the standard course of study. In AP Physics, which has an enormous amount of required vocabulary and content, Mr. Brigham requires his students to do the bulk of memorizing (of terms and vocabulary) on their own. He sees it as the students' responsibility to get on top of the memorization while he works on their conceptual understanding. With regard to compartmentalization, Mr. Brigham explained that he feels that it does a disservice to the students and the content; that the world just doesn't function within these neat boxes:

> …If I were made king for a day, the US public educational system would change. It would stop compartmentalizing science so dramatically. So that the only time that my students think they're taking physics is when they walk in and take physics...Even ask a middle school [student] what they're doing in science; they say, oh, we're in earth science. I think we need to take science content, break it away from its compartmentalized way that we do it…so that they [students] truly have time to process it and think of it in context with other things.

EOC testing. In the 2009-2010 school year, North Carolina discontinued the EOC test in Physics and Chemistry. So, during the school-year I observed, the EOC test was not a factor in Mr. Brigham's classrooms. However, he taught for over 15 years in courses that did have an EOC test. He described his beliefs about teaching for this test:

> In drill and kill they may do great on the test. I argue let's get them to do great on the test from a different perspective. If I can get them to rationally think about physics they can not only do the kinds of questions that they'll see on the EOC, they're going to be able to answer questions on any test that they see about…first semester high school physics.

He explained that this philosophy did not always go over well with administrators or parents and that is where he had to stand his ground. In both schools in which he has taught, Mr. Brigham has fought various battles over policy with regard to grading and testing. In his first school, he was required by the administration to give EOC preparation tests on a regular basis and he refused.

> My test scores of my students were always very high. I still had to fight against school policies…My last [school] required that I give them an EOC-like multiple choice test…six times a semester. I just refused…I had to fight battles like that all the time.

He described his current administration as supportive of his philosophy as long as he has a cogent argument for why he is approaching grading or testing in a particular way. Mr. Brigham sees the pitfalls of standardized testing (such as the EOC) being in its tendency to push teachers toward mediocre "less experimental" forms of teaching. He particularly sees this pressure exerted on new teachers who do not have a shield from a school or an administration that emphasizes test scores. He emphasized the importance of a strong mentor to act as a shield for new teachers:

> I think the real advice I have is for the mentor of the new teacher: 'Stand

> directly in the way between the teacher and the administrator.' Support the teacher with regard to test scores when they come back, at all costs. Even if that means you've got to stand up and say, 'Look, we as a department are going to say this set of tests - we don't care about them. We don't care what the scores are. Administration, we expect, perhaps, hope that you do the same thing'.

However, when he described his own teaching, he suggested that it took some time to adjust to its impact but after some tinkering with the balancing it requires, the EOC did not change his teaching praxis in any significant way:

> About eight years ago, I really started to focus on—how do I take all that the research is starting to show us what inquiry-based instruction is and still teach the standard course of study and prepare my students for the evil, evil thing called the EOC?

He described that having the EOC pressure perhaps hemmed in his teaching style only in minor ways: "I did [change] in the broadest sense of …planning. I learned to be a little careful about going too far out in some kind of hazy form of instruction." Mr. Brigham suggested that his students do fine on the EOC because the test is so broad based (in order to be replicable across the state) that his students are well prepared for any question on it, other than the questions that he describes as merely "trivia." While he certainly is not supportive of EOC testing, Mr. Brigham seemed to find it to be more of a hassle than a daunting hindrance to his teaching. He reported greater concern with, and stress from, the broad nature of the standard course of study and the compartmentalization of subjects, all part of a standardized system.

Case Two: Mr. Norton at Eastside High School

Eastside High School is an Early College high school that opened within the last 6 years in western North Carolina. There are 70 early college high schools in North Carolina, which comprise a third of all early colleges nationwide. According to the North Carolina Public Schools, "Early college high schools blend high school and college to challenge and support students and to ensure that they succeed in tackling college-level work" (NC Public Schools, *News Releases*, 2010). Many early colleges are located on community college or University campuses across the state. Eastside High School is situated on a community college campus and is part of a larger public school system that is comprised of a number of comprehensive high schools. Eastside serves a total of 233 students on two halls of a building that is well integrated within a community college setting. A typical progression for a student at an early college high school is to enter in 9th grade and complete 5 years of school including a high school diploma and an associate's degree. Students become more integrated into the community college campus and coursework as they move into their final two years at Eastside.

Students elect to come to this high school through a lottery system that must abide by a mandate from the NC Department of Public Instruction (DPI) that the student body reflect (percentage wise) the overall population of the school district in which the school functions (including racial, ethnic, and socio-economic considerations). Eastside's existence is the result of a partnership between New Schools Project (NSP) and DPI. NSP was established to oversee the various educational projects made possible by an initial grant of 11 million dollars from the Bill and Melinda Gates Foundation. Other stakeholders in this initiative include the Governor's office and the state education

cabinet. NSP encourages the establishment of new and innovative high schools and high school initiatives in the state. A group of local stakeholders were responsible for writing the grant for the specific creation of Eastside. As described on the school's website:

> …Students earn an associate's degree or two years of transferable credit along with their high school diploma. Employing *The New School's Project* design principles the school's mission is to redefine teaching and learning through innovative best practices by offering interdisciplinary courses, project-based learning, and a focus on college readiness. The school also provides ongoing affective and academic support in a small school setting to help students meet the high expectations of the Early College model.

According to state documents about the school, (for the 2009 – 2010 school - year), Eastside had a student population of 233 with 95% of these students attending on a daily basis. The average class size (for Physical Science and Algebra, classes taught by Mr. Norton) was 20. In 2009- 2010, Eastside received the designation as a "School of Distinction" (the third tier down in the list of designations) based on school-wide test results. A "School of Distinction" is one in which at least 80% of students are considered at grade level (based on test results). In the two courses Mr. Norton teaches, students scored 93.2 % in Physical Science and 94.5% in Algebra on End of Course tests. Under *No Child Left Behind* designations, Eastside did not make "Adequate Yearly Progress" (AYP) based on target goals the state set for school progress (and subgroups of students within schools). Eastside did meet 8 of the 9 established AYP targets.

Based on data from state documents, Eastside has a total of 15 classroom teachers; 100% are fully licensed, 33% hold advanced degrees and 8 (more than half) are

national board certified. These qualifications are higher than the state averages which are 92% fully licensed, 26% with advanced degrees and an average of 9 teachers per school with national board certification. Another document, supplied by the school, indicated that 42% of Eastside students are on free and reduced lunch and that 23% of the school population are minority students. The largest minority group at VSHS is Russian/Ukranian (13%) and the second is African American (6%).

Mr. Norton's background and introduction to teaching. Mr. Norton knew early on that he wanted to be a teacher.

> I remember as a tenth grader that I wanted to be a high school teacher. Because I saw it as a way that I could give back to other young people like I was - blessed basically by a few teachers…they made a tremendous impact on my life.

He credits his career choice to a few excellent teachers as well as his perspective, as a child, of seeing his parents and neighbors unable to attain a high school education because of economic hardship. He considered careers in engineering as well as environmental research jobs but he describes teaching as a calling. He completed a 2-year math and physics degree at a community college and then earned his teaching credentials as well as a Math and Physics Education degree from a state university. He recalls very little from his methods courses, as part of his teacher education courses, and admits that, at times, the assignments seemed out of touch with the reality of what he was witnessing in classrooms. Upon graduation, he immediately entered the classroom. Over the last 27 years he has worked at a number of schools, including a large comprehensive high school, a number of alternative schools, at two community colleges and at Eastside since its inception. Mr. Norton has been drawn to work settings in which he can experiment

and tinker with his teaching with his primary goal of figuring out how to engage students in learning. At one point in his career, he took a six-year hiatus from traditional teaching to work in "the ministry field". During these years, he worked at an outdoor retreat center, trained youth workers and also trained teachers across multiple states. He credits these years with helping him to develop greater observation skills and to expand his understanding of how to motivate students. Mr. Norton is licensed in Math and Science and became a National Board Certified Math Instructor in 2005. In addition to the many hats he wears, Mr. Norton has a Masters in Divinity and serves as a youth pastor.

Mr. Norton exemplifies life-long learning through his ongoing participation in professional development opportunities. The courses and workshops he has completed are too numerous to list but include masters level courses in mathematics education as well as a large number of courses in instructional technology, mediation and conflict resolution. In 2006 Mr. Norton received a competitive grant to be part of an innovative program offered through MIT; the "MIT Inventeam" is awarded to high school teachers and their students to encourage the development of invention prototypes. His students directly benefit from Mr. Norton's commitment to life-long learning. In addition to bringing in new ideas and knowledge to the classroom, Mr. Norton spends a significant amount of time applying for grants to bolster the equipment and supplies in his classroom. I count seven grants he has received in the last two years from one on-line donor charity alone. At the time of this writing, Mr. Norton was waiting to hear about a $10,000 award he was hopeful to receive. Incredibly, Mr. Norton has been awarded, "Teacher of the Year" five times (in five different schools where he has taught) including in 2008 at Eastside. In 2011, Mr. Norton received a prestigious fellowship designed for

teacher leaders, placing him among a select group of teachers charged with developing future teacher leaders in his region. Even with the numerous grants he has secured and the accolades he has received, he had a simple answer to the question I posed to him about why he teaches:

> I teach because a few good teachers opened up my world to see that people do care and that I really could do well at something. So, teaching for me became a way to give back, to help other young people, to have a mission in life. I feel more complete when I teach and experience the opening of a new way of seeing the world for a young person.

A visit to Eastside High School is a very different experience than entering a traditional comprehensive high school. It requires navigating a maze of buildings and hallways on a bustling community college campus to reach the main floor of the building that houses Eastside. Once inside, a more familiar feeling of a traditional high school returns. Photos and posters announcing various school events adorn the walls and between classes, students are noisily gossiping and wondering about the lunch menu. However, upon spending more time in the hallway, I noticed some striking differences; no bells signal the change between classes, students appear to have a high level of comfort with both teachers and administrators and the teachers seem to know every student who walks the halls. A lack of hierarchical boundaries is apparent. On a number of occasions students in Mr. Norton's classroom approached me and initiated conversation (something that never occurred during my observations at Westridge High School). This is an example of one of these inconsequential student initiated

conversations, from one student: “How’s it going? How are you? How are those notes (pointing to my field notebook)?”

Mr. Norton’s classroom is one of near constant motion. At each visit, I found new photos, posters and signs adorning the walls, many of them with inspirational quotes or encouraging words. On the walls are literally hundreds of photos of Mr. Norton’s students immersed in activity. The whiteboard was typically covered with instructions, diagrams, and reminders in multi-colored ink. Laptops were also in constant motion, either being picked up, used or stored by the students. A projector stand at the back of the room, linked to a laptop, was in frequent use by teachers and students alike. Books and boxes of science lab equipment filled every nook of this large classroom. Student desks were arranged in 4-person pods around the room. In one corner of the room Mr. Norton’s desk is obscured by stacks of papers, open books and various folders. His desk is framed by posted papers describing various curriculum outlines and pedagogical philosophies. As an example, Mr. Norton has posted the mission statement of Eastside, the school system’s learning outcomes for high school students, and various documents from *New Schools* and *Project Based Learning* (both driving philosophical forces at Eastside).

Structure of class. Eastside runs on a block schedule of five blocks of one hour and twenty minutes each. Students at Eastside are considered first through fifth year students rather than the traditional freshman, sophomore, junior and senior designations. A first and second year student attends school for the first four blocks (until 2:05 pm) while third through fifth year students sometimes do not attend the first block and often remain in school through the fifth block (until 3:45). A unique feature is the 3rd block (at mid-day) when students have an hour and twenty minutes for lunch, lab (when they can

get extra help with their work) and house (which functions like a typical homeroom but with more intensive opportunities for team-building and academic intervention). Mr. Norton teaches physical science and math to first year students in a unique integrated offering called, "IMAPS" (Integrated Math and Physical Science). Mr. Norton pioneered this course offering at Eastside, beginning in 2008. The IMAPS course is described on the school website:

> Students learn basic skills in algebra and geometry, as well as important skills in trigonometry, statistics, probability, and discrete mathematics. Physics and chemistry is also woven into the course during Year 1 to prepare students for upper level science courses.

Upon entering Mr. Norton's classroom at the start of a class, I usually found science lab stations set up on all the pods of desks. These labs included basic equipment such as tuning forks, slinkys, scales, or strings of objects hanging from the ceiling but also highly technical equipment for things such as graphing heart-rates and testing wavelength. Students entered the class wondering what new thing was waiting for them or what would be happening that day. On one occasion, I heard a student proclaim (upon just entering the classroom), "What's going on in here? It's like a hurricane came through here!" Even though equipment might be spread out all over the students' desks, Mr. Norton typically began his classes with a teacher-directed review or introduction.

Teacher directed opening to class. During the teacher directed opening to the class, Mr. Norton pointed out reminders that were neatly written on the left-hand side of the whiteboard along with information about upcoming deadlines, fieldtrips, and homework assignments. He then focused the next 10 – 20 minutes on either activating the

students' background knowledge (by asking for what the students already understand or know about a certain topic), developing conceptual understanding of the content they were about to explore (through the use of a concept map or the development of a timeline) or in logistical explanations of how a lab would operate (how much time at each station, reminders about expected student behavior or how to safely use equipment). On many occasions Mr. Norton used the projector to share information with students. He was drawn to electronic sources for either learning specific content or for exploring a concept. He easily switched back and forth from the use of technology (via the projector) to the whiteboard during these teacher-directed time periods.

I vary rarely observed Mr. Norton teaching content in a strict lecture style format. However, on many occasions he told students to write a specific equation or a definition in their notebooks which he had previously written on the whiteboard for them. Or he provided definitions and conceptual descriptions of scientific principles on worksheets or handouts for students to use as a reference point. Also, he told me that there are days when he spends a majority of class time in teacher-directed instruction but I did not witness any significant class-time when this was true. I noted, from an examination of student work, as well as Mr. Norton's documents, that he engaged students in more traditional teaching practices on a weekly basis, but this seemed to more typically occur as out-of-class assignments or in relatively short in-class assignments. He sees direct instruction as necessary when students are struggling with conceptual understanding or having difficulty with vocabulary. He particularly noticed that his English Language Learners (students for whom English is not their first language) need additional one-on-one attention for learning the necessary vocabulary. He teaches vocabulary gaps through

direct instruction and repetition. Note-taking activities typically occurred at the beginning of class or at the end of class. I observed that he spent no more than ten minutes, in large group settings, lecturing to students about supplied definitions or equations. More often, during these teacher-directed times, he pushed students to develop a conceptual understanding of what they would be studying or to illustrate a point or definition via a photograph, video "game" or provided a review through a physical demonstration or engaging activity. Students informed me that they rarely use the science textbook and that Mr. Norton encourages them to see it as a resource when they are struggling to understand something.

I regularly observed that these teacher-directed openings to class ended with some form of student engagement such as asking students to add to a timeline or develop a thinking web, for example. On one occasion, after sharing a concept web with students, he asked them to start another one (on the classroom whiteboard) as an example of how to investigate a research question. He asked the students to respond to the following question: What would we need to know in order to answer this question: "Would a starfish make a good pet?" I was initially skeptical that this prompt would lead to any thoughtful response but surprised to see thoughtful and creative responses. Some sample student responses (written in individual bubbles around the question):

- What is their life span?
- How will it interact with a cat?
- What conditions are essential for survival?
- What defines good?
- Is my Dad allergic?

Student directed exploration phase. Following the introductory portion of class, students moved into the main component of class time; what I call the "exploration phase." At times, Mr. Norton started this phase in a very open-ended manner: "I want you to play with this to learn about static electricity," and other times, the labs were accompanied by specific instructions and accompanying worksheets requiring specific responses from the students. I witnessed one lab on potential and kinetic energy that required students to work in small groups at seven smaller labs set up on individual tables. The groups traveled together and worked on the lab and the accompanying 10-page worksheet (designed by Mr. Norton) as a group. The teacher supplied worksheet included mostly higher level questions that required critical thinking on the part of the students. For example, one lab asked for a hypothesis at the start: "How do you think the number of times the pendulum goes back and forth will change with pendulum mass?" Students were required to explain their thinking on many of the questions, describing how they were thinking about problems or explain how they arrived at an answer. A smaller number of questions asked for students to supply a specific answer, based on the particular lab. For example, "Which ramp height had the greatest potential energy?"

During lab times, Mr. Norton energetically moved from station to station, offering nearly continuous feedback. He demonstrated being able to check in with each of the groups within a 3-5 minute rotation around the room. At times his commentary provided encouragement:, "I love the way you explained this." At times it probed for understanding: "Can someone make a conjecture about how this works?" and other times it focused on getting students back on task: "What could other people be doing while he is typing?" Mr. Norton did not shy away from directly addressing student

behavior when it got in the way of lab time or other classroom time: "Do not talk when another student is talking or presenting." The exploration phase typically took up the bulk of class-time.

Wrap up of class. Mr. Norton typically provided a 5-10 minute wrap up to the student-directed exploration phase; however, the daily wrap-up did not seem to follow any specific pattern or protocol. At times it was rushed and students merely put laptops away or cleaned up whatever remained from the lab they were working on. Other days it took the form of a student summary in their individual notebooks: "Please respond in your notebooks, summarizing the mathematics we did today." Some days he directed the wrap up: "Okay, let's spend the last ten minutes trying to make sense of all of this." A small number of students often stayed after class to inquire about progress on a project, ask about details for a fieldtrip or ask for specific help on any number of things, including if Mr. Norton would accompany a student to get a slice of pizza downstairs.

The role of the teacher. Mr. Norton described his role as connecting the content to the particular student.

> …There's more to teaching than knowing the content. That's obviously important. But knowing the student is important…that's the thing that has helped me to stay the course of being balanced…they're both important. I think a lot of times people err on the side of the content heavy-only or student-only. …okay we need some head knowledge and content stuff, but we also need some application. I think about my head, literally, and my feet. How do I get them up and moving and doing something, that's experiential, that will have them be engaged with it more? They learn more that way.

Mr. Norton described his role as connecting the content to the particular student. The bulk of his teaching time and his planning time was spent considering how to best engage the particular students he has with the content he needs to deliver. Mr. Norton prefers to act as a facilitator rather than a traditional style teacher. He described this role to me:

> I think the teacher becomes more and more of a facilitator, a coach, one who is inspiring some thoughts. Not giving the thoughts. Becoming better at our craft of asking questions to get people thinking. Even better, getting the students to ask those questions. Knowing when to say something and when to keep quiet. The temptation of most of us as teachers is that if we know something, we say it.

As an example, during one lab I witnessed four 9th grade girls rolling a ball on a wooden plank on a raised platform. The plank fell on the table and the girls jumped. At this point, Mr. Norton appeared at the side of their table and began an exchange with these students:

Teacher: What just happened?

Student A: "Changed from potential to kinetic?"

Teacher: "And?"

Student A: "I don't know. It hit the table."

Teacher: "What would happen if you allowed it to hit the table all day long?"

Student B: "It moves more."

Teacher: "Maybe, what else? What if I hit your arm all day long?"

Student A: "It would hurt!

Student B: "Oh, thermal heat…I never thought about that before!"

Mr. Norton then left the side of the table and approached me, to say: "That made it all worthwhile."

Questions played a prominent role in Mr. Norton's teaching. He looked for the ideal moment to use questions to push students to higher levels in their understanding. He sees questions as a key component of his teaching, a way that students can find their own answers in order to truly learn. However, he said he struggled on a continuous basis to maintain this type of teaching, given the pressures he said he felt to cover the content and the broad objectives of the standard course of study. In my time in the classroom, he seemed to be constantly trying to determine how much time the student exploratory phase would require and whether the trade-off for the time required would translate to "enough" student learning. There are times he described to me when he would prefer to stay in the role of the facilitator but recognized that the students needed to move on in order to keep up with the pacing of the course. He said he believes that students learn most when they are engaged in the process; however, it is a constant balancing act for him in considering whether he can allow the time it requires to allow students to truly learn on their own. In one instance, I witnessed another group of 9th grade girls working on a lab with a pendulum. One student held the weighted end of the pendulum and another held the other end above her (while standing on a chair). They were trying to figure out how to release it so it would not hit the wall or cabinets in the classroom in order to measure the swing of the pendulum. The only way they could figure out how to do it was to move the classroom furniture. Mr. Norton periodically observed the students at work but did not intervene. After ten minutes of observing the students moving desks and chairs around their corner of the room, Mr. Norton stepped in, "I love your inventiveness and creativeness but I don't want you to have to move the entire classroom. This is how you

do it." He resorted to direct instruction, in this instance, when he realized that critical time was being lost.

Students highlight Mr. Norton's creative and unique approaches to teaching. One student described his teaching this way: "He won't just be—here's the textbook, here's your work. Other teachers: 'read out of your textbook and do problems.' You learn, but it's boring. This stuff's hands-on…you learn, and it's fun." Students described how Mr. Norton goes to extreme lengths to make sure they understand the material, including meeting with students during school and in after-school hours. One student explained that he once spent two hours after school with Mr. Norton trying to sort out a single concept he didn't understand. Another student described Mr. Norton's commitment to students in this way:

> He goes above and beyond. He tells us he stays up really late grading our papers, so he can give them back to us, so we can do better on it. He'll stay here really late, grading our papers, helping us do stuff. Most teachers let us go home. They'll grade their papers at school. He works really hard for us. He expects us to work really hard for him.

Mr. Norton highlighted that one-on-one time with students is an important part of his teaching. At Eastside, Mr. Norton is able to offer some extra time for students during "house" (a block that occurs at mid-day). On numerous occasions, I heard students approach Mr. Norton and ask if they could come to his classroom during "house" block to either work on a project or get some help from him on a problem. I even witnessed students from another class enter his classroom in the middle of his teaching and ask for his assistance. Rather than send the students away, he intently listened to their question

(about a math problem) and approached the whiteboard in order to write a diagram to help them understand. When I accompanied Mr. Norton on the way to lunch and during lunch in the cafeteria (a time that is considered "duty free" for teachers), Mr. Norton was approached by students numerous times. Many times students asked for assistance with questions related to a class project or a homework assignment. On one occasion a student approached him and asked if Mr. Norton would help resolve a conflict students were having outside the lunchroom. He carefully considered all students' questions and in the situation with the conflict, he immediately left the table and intervened. I heard about weekend projects Mr. Norton led with students and observed the results of a huge project he and students submitted as part of a food drive for a local charity. It is clear to me that Mr. Norton does not see his teaching role as confined to his classroom or confined to specific class times. He conveys to students, in many ways, that he is available at any time of the day (and perhaps nights and weekends) to assist them. He also understands that when students are with him in class that there must be an open welcoming space in order for students to learn. Classroom climate plays an important role in his teaching philosophy. He understands the teacher has an important responsibility to develop a positive classroom climate:

> In terms of experiential piece and the role of the teacher, is to create a climate where there is a freedom to fail… to try, to risk, to explore. I mean there's a lot we don't have control over but one of the things I think we can claim more and more is that what happens in our classrooms, by and large, comes from the climate that we create.

The role of the student. One of Mr. Norton's students described how he understood the role of the student in his classroom: "Pay attention and ask questions. He wants you to ask questions if you don't understand something. Don't just sit there… then you fail the test. Ask him; tell him so he can help you understand it." Even with the extreme amount of activity in Mr. Norton's classroom along with the ever-changing conditions, students appeared to understand that they have to take learning in Mr. Norton's classroom seriously and that they are responsible for their own success. Students understand that Mr. Norton will go to extremes to assist them; however, they did not appear to take this for granted. They recognize that asking questions and figuring out where they have misunderstandings is their responsibility. One student told me, "If you fail, it's your fault. You didn't study hard enough. You didn't take the time." One way Mr. Norton modeled seriousness about learning is by dressing in a suit and tie on test and exam days. In the top right-hand corner of his tests, he has placed a photo of himself in a suit and tie with the following words, "Do best work on test and always! Suit and tie for test day!"

Students also took on an evaluative role in Mr. Norton's classroom. At times, students were asked to evaluate their own work and place it in one of three categories: "not yet proficient," "proficient" and "highly proficient." Students were asked to think critically about their own work (and other students' work) on a regular basis in less formal ways as well. I observed students studying vocabulary together by quizzing each other through a rapid round-robin one-on-one activity. Students rotated around the room and took turns as teacher and student. The teacher did not check on student answers during this time or interject his own definitions and answers. He allowed students to

teach one another and evaluate each others answers. On larger projects, Mr. Norton checked on progress and allowed students to self-assess on an ongoing basis. For example, on one group project, he gave students a "group self-audit" in the form of a rubric with ten categories for self-assessment. He collected these documents and used them to consider his next steps in working with groups or individuals. On one occasion, I heard Mr. Norton ask students to offer (to the large group) specific examples about what "highly proficient" work looks like.

Lesson planning. It is a challenge to accurately describe Mr. Norton's lesson planning. It is clear, from my observations and from talking with him, that he spends an enormous amount of time planning his lessons and mapping out his courses. As he described lesson planning, he never strays far from the standard course of study. He highlights the standard course of study as his starting point and he seeks to blend, where he is able, the objectives in science and math (for his blended course). The standard course of study is what provides the central framework for his long-range planning (in the summertime) for mapping out a course. He explained that one or two-weeks out he begins to tweak his plans and determine how to engage the students with the content. Many times he already has a lab in mind and he will revise it based on past experience or considerations of his new students. If he has received a grant or recently been to a workshop (which occurs on a regular basis) he makes changes to his plans to try to capture this new information or approach. Since he has already considered the standard course of study, he feels free to consider what specific activity will address the content and the particular students in the class.

> I find the best time is when they [the students] don't think I'm trying to meet standards. They're just having fun. They're trying to figure something out; they're asking questions. They're able to solve problems with it. In the back of my mind I'm knowing, OK yes, they are getting that standard. Then we'll try to name it to make sure they know what they got.

When Mr. Norton talked about lesson planning, he did not stray far from considerations about standardized testing. As much as he reported not liking their influence on his teaching and on his students, it was an ever-present concern that crept into his lesson planning:

> There's not a lot of time left outside of what is going good for a standard. It doesn't mean that I'll only do that, but I have to always be aware of that. The students are still tested in it. Up to this point they've been required to pass them for themselves. Now teachers are being held more and more accountable for how students do on these performance tests as well. Teachers are also getting graded in a sense, on how the students do…

A review of Mr. Norton's lesson plans revealed a process that is complex and multi-layered and too complicated for me to accurately describe. An example is included in Appendix K. The unique lesson planning form Mr. Norton developed reveals key considerations he makes in planning his individual lessons for the IMAPS course. The standard course of study is a starting point at the top of the page. He outlines key learning outcomes and key vocabulary but also includes considerations for "real world and community connections" as well as considerations for differentiation. He includes on the planning sheet simple reminders about things like options for "collaborative group work"

and sample "scaffolding" activities. The entire page is filled with writing and notes that assist Mr. Norton in the planning but also in the delivery of the lesson. When I pointed out that the lesson plan seemed rather complex, he was quick to say that he does not use all of the suggestions listed on a daily or even weekly basis and that he needed this one-page reminder to try to keep up with all the competing pressures on him as a teacher.

In addition to the EOC and the standard course of study, Mr. Norton reported feeling ongoing pressure to abide by the various innovative teaching philosophies and strategies introduced to him at his school or via outside resources related to his school's philosophy (New Schools Project and Project Based Learning, for example). His high school was specifically designed to be a testing ground for innovative teaching. While his teaching philosophy fits well with many of the teaching initiatives encouraged by his school, at times, these initiatives add an additional burden and complexity to what already feels like a stressful set of responsibilities. Mr. Norton reported a seemingly endless list of requirements placed on his teaching and this plays into his considerations for lesson planning; thus the complex lesson plan. The influence of the various philosophies and initiatives he feels drawn to (or pressured by) is also apparent in the worksheets and handouts he gives his students. He revises these worksheets for his own needs but definitely borrows from other sources such as "Project Based Learning" and various lesson planning websites (tryengineering.org, for example), However, the most significant stress he reported is in the competing pressures of accountability requirements simultaneously with the push for innovative teaching. He continually tries to make these forces compatible but wondered if it is possible:

> That's the dilemma I feel in these days. Depending on who—it's whose priority should I really listen to? What I've noticed about myself is, I'm more tired as a teacher, more stressed as a teacher. More thinking, wow, maybe I should have accepted that research job back there in 1979, 1980…making twice what I'm making now the first year out. Those thoughts come when I'm feeling overly stressed due to conflicting priorities. Some people say, why is it such a conflicting priority that people learn certain concepts, and still be inquiry-based?

Assessment. Mr. Norton described how his approach to assessment has changed over time:

> **…**I'm getting a little smarter…having some clear benchmarks along the way. What is it that you're trying to accomplish today? This week? So that those benchmarks, in and of themselves, are clear indicators of the students' learning… as opposed to waiting until the project's ended.

Mr. Norton's approach to assessment is another area that is difficult to summarize in a simple way. His approach took into account the complexity of the various pressures and influences he is under, while also staying true to his core philosophy about learning; that the student needs to be actively engaged for true learning to occur. Mr. Norton used a variety of formative and summative assessment strategies. As described by his search for benchmarks along the way, Mr. Norton recognized that students need ongoing feedback in order to grow and develop. In my observations, he offered this feedback to students in informal ways on a daily basis through his near-constant dialogue with students as he moves around the room. Many times this feedback was posed in the form of questions and he used student answers as a way to gauge understanding. Another informal system

he used was the student notebook. In it, students summarized their understandings from labs and respond to Mr. Norton's queries. He used the notebooks to assess where students were at many points during the semester. He also gave out numerous small assignments each week that he checks and provides feedback on. He sought to avoid seeing "grading" as his primary assessment system and emphasized to students that his interest was more in knowing that students have demonstrated understanding (or outcomes). Eastside is beginning to emphasize an "outcomes based" approach to assessment. Mr. Norton described what he means by an outcomes based approach:

> What you're looking for is a variety of different evidences that indicates this person understands this concept and can apply it. When that happens; you have two or three different pieces of evidence. It can be as simple as I see a student explaining a concept to somebody else…especially if that other person gets it. Then they [students] have a chance to demonstrate that they are high performing in that area.

Mr. Norton described sample evidences he usually requires as including some kind of high stakes test, a response to a lab and another piece of writing. He also described how this more open-ended approach to assessment allows students the opportunity to focus on evidences rather than grades and encourages more dialogue between students and teachers about learning rather than grading. He gave an example of how this shift might be perceived differently by a student: "It's not like I need to do better on a test; I need to understand how to distinguish between series circuit and parallel circuit." He offered an example of how the shift to evidences allows for more student creativity:

> I had a student ask me the other day, "Can I do this type of project to demonstrate that evidence?" If I can see it's a direct replacement, I'll replace it with what I was going to do…That's kind of neat if they're thinking there's another way that I can demonstrate this to you. Bring it on; let's see what you got there.

In this instance Mr. Norton was clear with the student that a different type of evidence would have to be developed outside of class-time because allowing this type of flexibility and creativity would be unwieldy to manage, particularly if every student were to design his or her own evidences. Again, the pressure of time was an important consideration for Mr. Norton.

A unique aspect of Mr. Norton's approach to assessment was in his use of outside community members. He incorporates the outside community as often as possible through field-trips, guest speakers and one-on-one "mentoring" for individual projects. In addition to acting as assessors of student work, he sees these community members as playing a motivational role for students as well. One example I observed was Mr. Norton's use of outside professionals as "mentors" for students on a large-scale year-long project. Depending on the nature of their small-group projects, students had to find appropriate mentors from the community to support their work. Mr. Norton finds value in having an outside audience for student presentations of their work. For larger projects, he invites key community members as well as high-profile state officials. The governor has already visited their class once and Mr. Norton invited her again for the final presentations of their projects. Students reported that this practice does motivate them: "It's not just a grade. Other thing [classes], 'oh it's just a grade; it's just a poster.' It's the feeling that you change someone's life. Someone could be watching this and be – 'oh my

goodness!" And another student described the pressure she feels to "get it right" when she knows an outside person will be in the audience: "We don't really want to--- I don't know the word-- intimidate or offend anybody in the audience. If someone had ADD or something, and we get some info wrong, we might offend them. They know because they have it."

Mr. Norton seeks out opportunities to use an outside audience and to engage students in projects that are useful to the community. A significant portion of time I observed in Mr. Norton's classroom was devoted to what he has named the "Changing Possibilities Challenge Project." He charged his students, in small groups of 2-4, to create a scientific invention that would help the world. He allowed considerable flexibility to the students in deciding what they will focus on as well as a large portion of time to develop their project. The project had an ambitious timeline starting in November with developing the students' driving questions and ending in May with an open-house exhibit of the projects. Students' projects included developing a solar-powered jacket for homeless people, a solar-powered affordable house and a museum exhibit on diseases for high school students. Assessment was incorporated into this project in many ways along the way, leading up to the final assessment at the open house exhibit in May. Students were required to talk with "constituents" about their products along the way. For example, "the solar powered jacket" group talked with people who are homeless to find out what they would most want in a jacket. Additionally, each group was required to have an outside mentor who assisted with critiquing their work on an ongoing basis. The use of an authentic audience as part of the assessment plan, for this project, was thoughtfully

considered by Mr. Norton and inserted in a way that students were not even aware of it as an assessment tool.

Standardized curriculum and accountability. The effects of standardization and the impact of accountability on teaching practice were never far from Mr. Norton's mind. He reported feeling exhausted and fatigued by the pressures of accountability. He clearly uses the standard course of study as a grounding point for his teaching and also respects that it is an important focusing instrument for his teaching. However, at times he described the standards as limiting, particularly with an EOC test looming in the distance. He struggles to find the time to do the type of "inquiry-based" teaching he enjoys and knows is meaningful to students. One solution he has found is to be more in control of the process. He described trying to use "problem-based learning" more often than "project-based learning" because the former allows for more teacher control of the outcomes:

> I've found with something called problem-based learning activities, I have more control because I know the direction in which I know the students will be engaging in this activity—how they're going to get there. The part that's exploring even more, for me, is called Project-Based Learning. That's a little more risky, but at the same time it has a lot of benefits. So for me, it has to be a pretty deep concept for me to go there. I'm hoping that we'll be gaining a lot out of that…it needs to warrant the time.

The consideration of time seemed to be a constant theme in Mr. Norton's professional life. He described feeling the pressure to prove that a project or activity was worthy of the time he devoted to it and also a change in his practice as a result of this pressure. This

change in his teaching practice stood in opposition to his stated recognition that learners need time to explore and evaluate their own growth:

> I think some times in education we rush…because we have standards we're trying to meet … When we can slow the pace down long enough to allow the students some creative think tank-type time. If we're not careful—a lot of it [time] goes towards lecture. The main reason is because there's a lot to cover.

EOC testing. Mr. Norton described significant concern about the impact of testing on students as well as conflicting feelings about EOC testing in general:

> I've had higher scores on EOCs…in other places when I taught in a more traditional mode. I'm not talking about teaching to the test, but teaching more directly in a traditional way…people scored higher on the test. I don't think they were as inquiry-based in terms of approaching problems in life, but they could take a good test. I think our country needs to figure out, and our education system needs to figure out which is the highest value right now.

The EOC test was something that weighed heavily on Mr. Norton in various ways. He provided time for students to take EOC practice tests during the year and carefully considered how much time an activity was worth based on its ability to reach standards (that will ultimately be tested). While he works at a school expressly designed to be innovative and the workshops and professional development he attends, on an ongoing basis, implore him to be inquiry-based, he reported feeling escalating accountability pressures that run counter to an inquiry-based practice. The largest impact of accountability that he reported to me was his own sense of fatigue at trying to do it all:

> It seems like by now, I shouldn't have to work quite as hard as I do, but I still find myself working as hard as ever – maybe more so…I'm trying to meet both the standards that the state would say is important, that our county says is important, that our school says important, while also engaging my students in experiential learning. So it is —I find how I've changed—one way is not a good change, it's a negative change. And that is I'm a lot more tired than I used to be.

Mr. Norton's fatigue seemed to be related to the amount of time he spends trying to address the pressures of accountability with the competing pressure to be innovative. However, there appeared to be a deeper philosophical fatigue as well about his professional role of determining the "right" way to teach his students being usurped by outside forces. Accountability demands and results were undermining his sense of himself as a professional, as someone trained to know what is best for his own students. While he did not describe his fatigue to me in this manner, the way he described his EOC scores revealed larger concerns that weigh on him:

> In the past year, I've gotten praised over some of the highest scores in the physical science EOC… wonderful, beautiful, great, pats on the back. In one way of looking at test scores…one way of framing it. One way of—one department's way of viewing it. Then there's another way of viewing it. Then it's like, sheesh, am I teaching them anything? Depending on who says. I mean there's different criteria at which they look at…one of the challenges I have right now is to consistently get high EOC scores and still do this [teaching] experientially.

Themes from Both Cases

The two cases of this study, described in detail in this chapter, have obvious differences in terms of context (two vastly different high schools) and the fact that one teacher no longer has an EOC requirement as part of his courses and the other teacher does. However, some important similarities exist between the two cases: the teachers are both males of a similar age, teach within the same content area and have similar numbers of years of experience in the classroom. They have also both had other careers outside of teaching. The differences in context coupled with the similarities of characteristics provide an interesting opportunity for a consideration of common themes across cases, with a focus on experiential praxis in the context of accountability. I have selected the themes that became most prevalent to me, as revealed through interviews with students and teachers, extensive observation in both classrooms and an examination of documents from the two classrooms. In some instances, one case more obviously represents or highlights a particular theme and this is noted in my analysis. I break these categories down under two broad headings of "factors that support and "factors that challenge" an experiential practice.

Influential factors. In Chapter Two I outline both school and teacher factors that are described in the literature as potentially influential on a teacher's ability to implement an innovative teaching practice. I include the following "school factors" as worthy of consideration as challenges to an experiential praxis: 1) classroom configuration 2) student attitudes 3) other faculty member's lack of support 4) standardization pressures including pressure to teach the core subject, a large amount of curriculum to cover in a short amount of time and excessive dependence on textbooks 5) high stakes testing 6)

short time periods allotted for classes and 7) inadequate professional development opportunities. I also outline the following factors as "school factors" that could act as supports for an experiential teaching practice: 1) shared planning time with other teachers 2) teachers learning in "communities of practice with other professionals and 3) a principal and/or other teacher leaders who support an innovative teaching practice. The teacher factors I include that could either challenge or support an experiential praxis include 1) teacher beliefs about learners 2) teachers' content and pedagogical knowledge and 3) teachers' training and preparation prior to entering the teaching profession.

I considered these various factors (13 in all) when analyzing my data set. I ultimately determined that some of the factors I uncovered did not fit neatly within the boxes of the factors I had described in my review of the literature. I decided that a different label, in some cases, was needed. Many of these uniquely titled factors include a combination of factors or a component of a factor as described in the literature. Other factors, I discover in my analysis, align well with what is described in the literature. The factors I include as supportive of these two teachers' experiential practice are 1) careers outside of teaching 2) a philosophy that places students before content 3) a recognition that teaching extends beyond class time and 4) a supportive administration and supportive peers. Factors I include as challenges to an experiential praxis for these two teachers are 1) teacher fatigue 2) time pressures that do not allow for true experiential learning 3) pressures from accountability and standardization.

Factors that support. My selection of these two cases was based on my assessment that they both exemplified an experiential practice. Upon further observation and extensive interviews, I discovered that both teachers exuded a confidence about their

ability to teach their content as well as their chosen pedagogical approach. They teach from a strong philosophical center that puts students first and understands the role of the teacher as a guide and mentor. This philosophical center, held confidently, is critical for teachers who have to consistently push back on pressures from standardization and accountability in order to continue to teach in an experiential manner. The following factors that support these two teachers' experiential praxis all emerge from this philosophical center.

Impact of careers outside of teaching. While not the only factor involved in developing a strong philosophical center, I believe that careers outside of teaching have been a significant influence. With regard to Mr. Brigham, his previous career as a physicist in the oil industry gives him tremendous clout with the students through the stories he relates and his deep understanding of the practical side of physics. He also understands, clearly, what skills are required for successful work in the industry. This past experience as a physicist gave him the confidence to know that critical thinking skills, attained through inquiry-based activities, will offer students the skills they need in the workplace. He is able to maintain a perspective about the EOC and the broad-based standards as being a nuisance while he focuses his quest on engaging students meaningfully in scientific inquiry.

Mr. Norton's outside career occurred in the middle of his teaching career and influenced his practice in different ways than Mr. Brigham's, but with similar impact. His years working in the "ministry" field gave him a perspective on his own abilities as a teacher as well as ideas of how to motivate students of all ages. He also credits his time working in outdoor education (as part of this same 6-year hiatus from teaching) as giving

him a solid foundation in experiential praxis. During this time, Mr. Norton witnessed the power of experiential education to motivate and transform learners. This was important for developing confidence in his abilities as a teacher but also in developing a strong philosophical stance toward experiential teaching.

The impact of careers held outside of teaching influence both of these teachers' praxis in a variety of ways. I believe that the impact is on both pedagogy and content and perhaps is illustrative of what Shulman (1986) described as pedagogical content knowledge. Shulman (1986) describes a complex interplay between pedagogical knowledge and content knowledge and explores how strengths in both areas influence one's teaching practice:

> Within the category of pedagogical content knowledge I include…most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations-in a word, the ways of representing and formulating the subject that make it comprehensible to others. Since there are no single most powerful forms of representation, the teacher must have at hand a veritable armamentarium of alternative forms of representation, some of which derive from research whereas others originate in the wisdom of practice. (Shulman, p. 9)

Mr. Brigham and Mr. Norton demonstrated a strong ability to make the subject comprehensible to their students. They also seemed to have an inexhaustible toolbox of ideas about how to design lessons to convey conceptual understanding to students. This strong ability to translate content to students seemed highly related to Mr. Brigham's past career as a physicist. Mr. Norton's insistence that students learn authentic skills that

would be useful in the "real world" seemed related to his work experiences outside of teaching as well as his current continued work in the ministry. Both teachers demonstrated strong content knowledge coupled with a clearly articulated pedagogical approach. I attribute the coupling of these abilities to their experiences outside of the field of teaching.

Both teachers expressed concern about new teachers and their ability to teach in an experiential manner given the pressures on them to be accountable. Their concern was not based on the age of new teachers or their background in content or pedagogy but focused on whether they would be able to confidently push back on accountability demands handed down from administrators or the school system. Mr. Brigham believes that mentors must step up to act as a shield for new teachers. While years of teaching have certainly added to both teachers sense of confidence and understanding of their own philosophical beliefs about teaching and learning, I believe that their previous careers, outside of teaching, perhaps play a more significant role.

Placing students before content. My initial assessment of both of these teachers would have highlighted content as being of foremost importance in their planning and implementation of lessons. Both teachers demonstrate a commitment to the field of science through dedication to ongoing professional development and through their national board certification in their content area. They also both demonstrate a love for the content, during class-time, through their obvious enjoyment of teaching. In their classrooms, there is frequent laughter and an open environment for exploration, fueled by the teachers' obvious excitement for the subject. However, upon further investigation, it is clear that content is not equal to what both teachers hold as their highest goal: to

encourage, prod and support their students toward greater achievement, as students of this content but also contributors to their world. Neither teacher would be very successful at doing this without a strong background in the content. However, their emphasis, in the classroom (and after-school and weekends when they both continue working) is to advance their students' critical thinking skills and abilities to solve any problem. This philosophical decision, to place the development of the student as of higher significance than advancing the particular content, is a key factor in these teachers' ability to maintain an experiential praxis.

Teaching extends beyond class time. Another common theme that emerged in my research was that both teachers were available to their students outside traditional teaching times. At first this could be understood as two teachers merely caring a lot about their students, which is true. Their students mention over and over again that they feel cared for and also they are motivated to work hard because they know their teachers are working hard. Beneath this layer, though, is something greater at work. The willingness to put in a lot of extra hours is what is required of these teachers in order to maintain a teaching practice that fits their teaching philosophy. Both teachers believe that students must be actively engaged in order for true learning to occur and that no student is a failure but more accurately a work in progress. In order to fulfill these beliefs, both teachers have figured out how to be available to students outside of the traditional class time. This requires a lot of extra hours for both of them. For Mr. Brigham, the extra hours with students come in the form of before and after-school revision sessions in the morning and afternoon. A large number of students participate in these sessions and one student told me she spent more time in Mr. Brigham's classroom after-school than during

school hours. For Mr. Norton, this extra time comes during lunch block, after-school and on projects that extend to some Saturdays. While neither teacher described it this way, I believe this extra time is what makes it possible for the teachers to spend their teaching time in experiential praxis. Knowing that there will be other hours to address specific individual deficits and sort out misconceptions allows for freedom of exploration during class time. Mr. Brigham explained that true differentiation during class time is an impossible proposition and that only through revisions is he able to truly differentiate. Mr. Norton described out of class time as critical for his English Language Learners to learn crucial vocabulary. Extending their responsibilities beyond class time takes a toll on both teachers as I heard both of them describe feeling tired with the amount of work they put into their jobs. However, this extended time outside of class is what makes it possible for them both to maintain experiential praxis as a foundation of their classroom time.

Support from administration and peers. External factors, to the teachers, were not as obviously influential to these teachers' ability to maintain an experiential teaching practice as were factors within the teachers that I have already described. However, in their own ways, both teachers described their principals as being supportive. This support was for the individual teacher rather than support for an experiential practice per se. Mr. Norton described just this type of support he received from administrators in a previous high school where he taught. He wanted to carry out an experiment that would require hanging a bowling ball from the ceiling, so he asked the principal if this would be okay. The principal reluctantly agreed in this instance but clearly told Mr. Norton not to ask for permission (in other words, "just do it but don't ask me") in the future. In Mr. Brigham's case, he has had to convince the principal at both schools where he has worked to trust

what he is trying to do. At times this has required that Mr. Brigham stand in direct defiance of standard procedures, such as EOC practice tests and a required number of tests within a grading period. At both schools, he eventually gained the principals' trust and received support in the form of not requiring Mr. Brigham to follow certain standard procedures. In addition to the principals, both teachers mentioned supportive colleagues in their schools. While not highlighted significantly, both teachers described how they extend their practice through engagement with other colleagues. Mr. Norton is currently working with his colleagues in math to move toward an outcomes based assessment. Mr. Brigham, as department chair, is mentoring others in inquiry-based instruction. This mentoring role provides him with the opportunity to share his practice but also affords the added benefit of reflecting on his own practice.

Factors that challenge. The main barriers to an experiential practice for these two teachers came in the form of teacher fatigue, finding enough time to truly allow for experiential learning and pressures from accountability and standardization. While both teachers appear to be happily challenged by their jobs, they both expressed feeling fatigued by different aspects of their jobs. For Mr. Brigham the fatigue comes from not feeling as though the before and after-school revision sessions are serving their intended purpose. He blames this more on students who are more "grade oriented" than "learning oriented" rather than as a function of standardization demands. However, I would claim that his insistence on maintaining an experiential practice creates the necessity for the revision sessions and thus is, at least in part, the cause of his fatigue. Rather than abandon the revision sessions, he continues to tweak them and tries to train his students so that the revision sessions will truly serve their intended purpose, which is not to offer remediation

but to encourage deeper thinking. For Mr. Norton, fatigue stems from trying to answer to the various competing forces on his teaching practice. He strives to attend to the demands of accountability while simultaneously adapting his practice to the innovative teaching demands of his particular school. In the midst of the various competing forces, he also tries to maintain an experiential teaching practice. He reports feeling fatigued by the often contrary demands on him and believes he is probably working harder than ever to address these demands.

In my accounts of these two cases, I describe how both teachers allow for an extensive amount of student exploration in their classrooms. This pedagogical decision is based on a belief that students need time to uncover their own answers and to determine their own unique questions. This is a central component of an experiential practice. Both teachers admit that time constraints (of a typical public school class) puts limitations on an experiential teaching practice. Both teachers have addressed this concern by providing a lot of extra time for students outside the bounds of class time. However, there still remains the reality that the exploration time in their classrooms has a more confined component within the boundaries of a finite (relatively short) class time and a standardized curriculum. Both teachers engage students in a few high profile projects that are time intensive, but do so sparingly. They recognize that pacing demands require them to move on and teach in more bounded ways for the bulk of their assignments. Even with the obvious constraints of time, both teachers find ways to engage in experiential teaching and maintain this praxis as the heart of their teaching. They make this pedagogical decision without sacrificing the mandated curriculum. Both teachers

demonstrated an ability to maintain a strong commitment to the curriculum standards while simultaneously engaging in an experiential practice.

Balancing experiential praxis with accountability. The Association for Experiential Education (AEE), as described in Chapter Two, provides principles (in the form of a checklist) of experiential teaching (Association for Experiential Education, 2011, "The Principles of Experiential Education"). This 12-point checklist provided a framework for me to assess the experiential praxis of both teachers in my study. I compared my data on Mr. Brigham's praxis to the AEE checklist and found agreement on all points with particularly strong alignment in the following areas: 1) the learner is required to take initiative, make decisions and be accountable 2) the learner is actively engaged throughout the process 3) the outcomes of the experience are not predictable and 4) the primary role of the educator is that of a facilitator. My data on Mr. Norton's praxis also lined up completely with the AEE checklist. In comparison to Mr. Brigham's praxis, Mr. Norton demonstrated an emphasis on two different points: 1) the learner is engaged intellectually, emotionally, socially, soulfully and/or physically in authentic learning tasks and 2) relationships are developed and nurtured: learner to self, learner to others and learner to the world. Both teachers' praxis clearly exemplified what AEE outlines as key components of the practice of experiential education. I attribute these teachers' ability to engage in an experiential practice, as a foundation of their teaching, to the strong philosophical center from which they operate.

Even with a strong philosophical center strongly operating in both teachers' praxis, accountability demands remain a cause for concern, to some extent, for both teachers. Mr. Brigham portrayed a teacher currently experiencing far less stress and

frustration about pressures from EOC accountability demands and state standards than did Mr. Norton. However, Mr. Brigham was not currently under the EOC pressures having had the tests removed from his subject the previous year. Even so, this was an interesting finding because I had assumed Mr. Norton's context of an "innovative high school" would, by definition, alleviate some of the confounding pressures of high-stakes accountability. In fact, in the case of these two teachers, Mr. Norton is experiencing accountability pressures more profoundly. He expressed far more concern about these pressures and outlined how his teaching praxis had changed as a result. Surprisingly, Mr. Brigham, in the context of a traditional comprehensive high school, reported feeling less frustration and consternation about the influence of accountability pressures on his teaching. He recognized that it has a negative influence but spends far less time worrying about it and seems to have found a balance that fits well with his philosophical beliefs. Mr. Norton is caught in a difficult balancing act of feeling pressured to be accountable on one hand and pressured to be innovative on the other. I came to understand that Mr. Norton is doubly saddled by accountability demands due to outside forces seeking to establish "proof" that innovative practices (such as the ones espoused by his school) are effective and, perhaps paradoxically, using students' EOC scores to gauge this effectiveness.

Mr. Brigham and Mr. Norton exemplify teachers who carry out their teaching from a strong philosophical center. This center drives their teaching practice and guides their decisions about lesson planning and assessment. It also shields them, to some extent, from the pressures and demands of accountability. The competing forces for their attention could be understood as a continued philosophical battle between essentialism

and progressivism. However, both teachers exemplify a bold attempt to balance these forces through maintaining a central focus on the needs of their students. While both recognize that experiential teaching offers great opportunity for student growth, they also understand that, at times, students most need direct instruction to address gaps in their understanding. Their ongoing balancing act is primarily focused on what it is their students most need, rather than what a high stakes test prescribes.

CHAPTER FIVE: CONCLUSIONS

As described in Chapter One, I embarked on this study with strongly held views about the value of experiential learning stemming from my early teaching experiences in outdoor settings as a wilderness instructor and in a secondary classroom at a large urban school. Chapter One describes the purpose of my study which was to explore deeply how high school teachers, who use experiential methodology as the foundation of their teaching, describe and enact their teaching practices in the context of a public school system that emphasizes accountability. The questions I sought to explore through my research were:

- How do these experiential teachers, teaching in secondary public school classrooms, describe and enact their experiential teaching practices in the context of a school system with a heavy emphasis on accountability?
- In what ways do these teachers describe and demonstrate the implementation of experiential teaching as compatible or incompatible with high stakes testing?
- How have accountability demands affected the experiential teaching practices of those who subscribe to this practice as the foundation of their teaching?
- What specific factors influence these teachers' ability to maintain an experiential teaching practice as a foundation of their teaching practice?

I determined that an in-depth case-study of two high school teachers would provide me with rich data for exploring these questions. In Chapter Two I outline the research supporting experiential teaching as an effective practice for supporting student growth and academic achievement as well as the research indicating that teachers change and adapt their teaching practice as a result of pressures from high stakes testing

requirements. In Chapter Three, I describe in detail my research design and my selection of two exemplary cases for the focus of this study. Chapter Four asserts my findings from this study through an in-depth description of each case as well as key factors uncovered, through my research, with regard to factors that support and factors that challenge an experiential praxis. Chapter Five provides a conclusion with a reflection on the implications and possible applications my findings may have on teachers, schools and understandings about experiential praxis. I end this chapter with a personal reflection on the research process.

Significance of the Study

The significance of this study is in its potential to provide an in-depth understanding of the teaching practices of teachers in public schools who subscribe to experiential practices in an era and context of accountability. A significant body of research exists describing how accountability pressures from high-stakes testing have forced teachers to make difficult choices about their teaching practice (Mustafa & Cullingford, 2008; Wills & Sandholtz, 2009; Llewellyn, 2005; McCloskey & McMunn, 2000; Sacks, 1999). There is also considerable research about the effectiveness of experiential methodology to promote student learning and growth, in both alternative settings and public school settings (Ives & Obenchain, 2006; Powell & Wells, 2002; Murphy, 2009, Scales et al., 2006; Waldstein & Reiher, 2001). However, it is less clear how a public school teacher could maintain an experiential practice in the midst of strong accountability pressures. What factors are involved in a teacher's decision to maintain this practice? How does an experiential teacher describe the pressures of accountability and how has he or she changed or adapted her practice in light of these relatively new

pressures? The need for these answers is described by educational researchers at the University of Virginia and NC State University (2003), "…while many in the experiential education field (participants and practitioners) believe that it [experiential education] works on some general level, research needs to clearly describe what works and why in order to determine the viability of its use in the public school system" (Mink & O'Steen, 2003, p. 355). My research clearly addresses this question of what works and how it works, from the voices and lenses of two practitioners putting it into place on a daily basis in two different public schools. Mink and O'Steen (2003) further describe a gap in the literature with regard to how effective experiential education is in addressing the mandated high-stakes curriculum (p. 355). My research provides an in-depth exploration of the successes and challenges of two public school teachers who are attempting to address the standard mandated curriculum through an experiential praxis.

I sought to clearly describe the teacher and school factors that were involved with supporting these two teachers' praxis. This sort of detail is currently not available in the research, and a gap exists in understanding what factors are involved in maintaining an experiential practice within the context of this current era of accountability. Experiential teaching has been shown to positively influence student achievement in many of the areas claimed by public schools and politicians as significant 21st century learning goals (Powell & Wells, 2002; Murphy, 2009; Ives & Obenchain, 2006). Given this, it is critical that we understand how to support an experiential teaching practice in public school settings. Knowing the factors that support and challenge a teacher to be able to teach in this way provides important information to those who are concerned with preparing students to be successful participants in a global economy.

Teacher evaluation. Another possible implication for my findings is the potential for it to illuminate aspects of effective teacher practice. Teacher effectiveness is receiving considerable attention in the latest wave of education reform. The heightened attention on teacher effectiveness is described in a recent article in the journal, *Educational Leadership* (2010):

> The year 2010 sped up the pace of reform. The new attention on effectiveness is most obvious in the call for improving teacher evaluation. Although evaluation has traditionally been a local responsibility, federal programs are calling for states to require evaluation systems that include specific measures of teacher effectiveness, such as student achievement data. (Stumbo and McWalters, p. 10)

President Obama's "Race to the Top" initiative, as well as the US Department of Education's recent (2010) *Blueprint for Reform* places teacher effectiveness and the measurement of this effectiveness as a cornerstone of both of these new initiatives (Stumbo and McWalters, 2010). With a focus on teacher effectiveness gaining momentum at the same time that states are feeling the strain of having to balance very tight budgets, this research becomes even more significant. As states wrestle with how to determine a teacher's effectiveness, it is crucial that we truly consider what makes an effective teacher and seek our answers beyond solely standardized measures. This point is underscored by Stumbo and McWalters (2010):

> How a teacher helps students to become motivated to learn, persist in their work, strive to be lifelong learners, express themselves artistically, behave civilly, and not bully others – these factors matter to parents, students and communities. The

> Obama administration captures these sentiments in its call for a more holistic understanding of education. (p. 14)

While policy makers, teachers, students and parents may all agree that a more holistic understanding of teaching and learning is necessary, states are struggling for a blueprint to capture this more in-depth, descriptive and accurate picture. My research, through its methods and resulting data, provides important descriptive detail about a teaching practice that addresses standards and meaningfully engages students. This research offers new understanding toward the creation of a more holistic blueprint for measuring teacher effectiveness.

The teachers in this study demonstrate an ability to maintain a focus on standards while also engaging students in meaningful learning. Rather than abandon the standards for the sake of innovation, these teachers are grounded in the standards and start their innovation from that point. Both teachers describe how they begin their lesson planning with the standards and continue to consult the standards as they implement their lessons. Both teachers strive to address the standards through an experiential praxis. This requires a carefully thought-out approach that seeks to integrate the standards in authentic ways. This approach expands the notion of defining "effectiveness" in terms of test scores and suggests a deeper understanding of what makes a teacher effective.

Significance of prior careers. Both teachers in this study had careers outside of teaching that were influential to their teaching practice. In the case of Mr. Brigham, his outside career was prior to entering the teaching field and in the case of Mr. Norton, his outside career was in the form of a mid-career hiatus from teaching. In both cases, the teachers used their prior experiences to make the learning in their classrooms relevant for

their students. This is a significant finding for its implications to teacher recruitment, teacher training and teacher retention. If a prior career can support a teacher in implementing an engaging teaching practice, then this should be a significant factor for consideration by both principals and teacher educators. This finding certainly highlights the skills and abilities that a mid-career alternatively licensed individual could bring to the classroom. However, it does not necessarily mean that teachers straight out of college could not also bring relevant past experiences to teaching. It does indicate that meaningful "real-world" past experiences can translate to relevant engaged learning in the classroom. The implication then, for teacher educators, is to consider implementation of strategies to engage pre-service teachers in authentic "real-world" tasks. These could come in the form of service-learning or in other forms of community engagement as an important component of a teacher preparation program.

Implications for current changes to standardized testing. At the time of this writing (March 2011) the General Assembly of North Carolina ratified an act to eliminate all state mandated tests (which would included EOCs) effective July 1, 2011 and elected to maintain those tests required by federal mandates of *No Child Left Behind* (General Assembly of NC, House Bill 48, 2011). This decision was based on extreme pressures on state budgets impacted by an economic downturn that hit global markets as well as the United States in 2007. The decision to eliminate state-level standardized tests can be attributed to monetary concerns rather than philosophical ones. Mr. Brigham described this decision making process:

> I'm so glad that the blue ribbon commission had such scathing things to say about the EOC system. I'm so glad that the economy tanked when it did, just after the

> blue ribbon commission... That gave DPI [Department of Public Instruction] some cover to say, we're going to get rid of these tests. You can do it and say it's the economy, or you can do it and say we think it will make better teaching. I would like them to stand up and say, I think it'll make better teaching.

There is not a rosy forecast for a quick end to the current budget crisis; however, it is hard to imagine that the era of testing and accountability is over. Other forms of accountability, at the state level, will be required. This is corroborated at the end of the bill that eliminated the state-level testing:

> The State Board of Education in conjunction with the Department of Public Instruction shall consider alternative assessment strategies for measuring the academic performance of students and for evaluating teachers. The Department shall report its proposals on any such strategies to Education Committee of the House of Representatives and the Education/Higher Education Committee of the Senate by June 1, 2011. (General Assembly of NC, House Bill 48, 2011)

With an overhaul of state-mandated accountability requirements underway, new ideas are needed about how to less expensively monitor student progress on a large scale. What is most needed is an understanding of the reality of the large-scale need coupled with a thoughtful approach to gaining an accurate picture of what an individual student is capable of doing and where there are gaps in his or her knowledge. My study provides a rich description of two teachers who hold these assessment goals as primary ones for their classrooms. These two teachers' approaches, while not designed for large scale across-the-board application, offer holistic examples of how to monitor student progress and assess student knowledge. My study uncovered specific factors that supported the

practice of these two teachers, thus adding important practical information to the literature about how administrators and teachers could support this type of practice. The results come at a time when states are reexamining their accountability systems. The budget crisis paired with the reality of changing 21st century needs provide an opportunity for states, like North Carolina, to take a bold step toward a more holistic and meaningful approach to accountability, with regard to both student achievement and teacher effectiveness.

New understanding of experiential teaching. As evidenced by the literature, a wide variety of fields have co-opted the term, "experiential." Learning how teachers describe and implement this praxis in their daily teaching revealed interesting new understandings about experiential practices carried out in a more traditional setting. One response from a colleague who was a reader and provided intercoder reliability to this study (described in Chapter Three) served to remind me that there continue to be misunderstandings about what is meant by experiential. This reader provided this response after reading one teacher interview: "The experiential aspect is more subtle than I expected but clearly he engages his students." This statement highlighted to me some of the continuing misconceptions about experiential education. When I compare the clearly outlined description of an experiential practice (provided by the Association of Experiential Education, 2010), with these two teachers' practices I found alignment on nearly every point (as I describe in Chapter Four). However, the general public, and very often even veteran teachers (my reader colleague for example) have a concept of experiential education as something that must involve either students being outside or student engagement through physical action. As Mink and O'Steen (2003) describe:

> Within the context of a traditional public school system, many educators view experiential education as a philosophy more suited to the mountains or woods not as an everyday strategy in their classrooms. Likewise, many experiential educators view the public school system as too constricted, inflexible, and scripted - not as a conducive environment for their philosophies. (p. 355)

In my analysis, I sought to guard against some of my own long-held misconceptions of what makes an activity or practice experiential in nature. Given that my earliest teaching experiences involved the use of experiential teaching in outdoor settings, I have a tendency to resort to this narrow interpretation of what is meant by "experiential". My study expands this view and provides a descriptive picture of how two teachers talk about an experiential practice and enact an experiential practice in the particular context of secondary public schools. This adds important new understanding of this phenomenon to the literature on experiential education.

Applications

As a case study analysis of two teachers in secondary schools in western North Carolina, the data is highly contextual. However, what this study provides is a greater understanding of how accountability pressures affect teaching practice and a descriptive picture of what factors may be involved with some teachers' ability to maintain a progressive teaching practice in the context of these pressures. The thick description of this phenomenon resulting from these case studies may be of interest to teachers and administrators who struggle with balancing accountability requirements with a belief system that runs counter to prescriptive and more traditional teaching practices. Additionally, this research may help to provide a more rich and detailed understanding of

an experiential teaching practice, in the context of contemporary public schooling. This adds to the body of research about experiential practice, particularly, and progressive teaching practices, more generally, as they are applied in traditional settings.

Supporting teachers in the midst of accountability pressures. My study highlights the impact of accountability pressures experienced by two veteran teachers. However, the impact of accountability on new teachers is also highlighted by both teachers as a point of personal concern. My study uncovered the significance of teachers having protective support in the face of accountability pressures, in the form of a strong mentor for new teachers and in the form of a supportive administration for all teachers. One teacher described this support as acting as a "shield" against accountability pressures. However, more accurately this support came in the form of administrators who demonstrated flexibility with the requirements placed on these teachers as well as support for innovative ideas the teachers wanted to implement.

New teachers need extra support. Mr. Brigham describes how standardized testing pressures can be strongly felt by new teachers:

> I believe that that pressure [of standardized testing] drives us all toward mediocrity rather than excellence, because excellence is risky. To try and be excellent is always being out there on the edge…it's really hard for new teachers in particular to try and be willing to do this.

Both teachers in my study underscored their particular concern for new teachers. They both reported feeling a strong responsibility to assist new teachers to try more progressive teaching practices while also feeling concerned about the stresses that new teachers uniquely experience when trying to implement these strategies. As Mr. Brigham

described to me, he believes new teachers are under extreme pressure to teach toward standardized testing demands. As described in Chapter Four, one of the most significant supports for both of these teachers, is their own strong philosophical center about their teaching practice. While there is research in support of developing just this sort of philosophical center, characterized as an important component of teacher education, it is less clear how teacher education programs can prepare candidates for the pressures once entering the teaching profession and how administrators can continue to support this strong identity once a candidate arrives. Agee (2004) described this gap that new teachers experience between progressive teacher education programs and the reality of the demands from high stakes standardized testing pressures. Agee's research followed an English teacher through her final year in a teacher education program and through her first two years of teaching. The research explored the struggle this new teacher had in aligning her constructivist student-centered goals for teaching (developed in her teacher education program) with the countervailing pressures she felt from high stakes testing once she entered the classroom. Agee's particular focus was on the impact that high stakes testing had on a new teacher's diverse viewpoints, particularly for teachers of color. Agee suggested that reform is necessary in this area: "Meaningful reforms will require a sustained effort by policy makers, administrators, and educators…to examine the tendency of mandated assessments to reify one way of thinking and narrow conceptions of what counts as knowledge in the school curriculum" (Agee, 2004, p. 772). For a new teacher to maintain a strong sense of one's beliefs and a confidence to continue teaching from this stance, even in the midst of strong pressures to do otherwise, requires strong support. Luft (2009) described how beneficial supportive colleagues can be for

new teachers. Luft's research explored the experience of first year teachers from four different teacher induction programs and revealed that the placement of a new teacher around supportive colleagues can be extremely beneficial in supporting a progressive teaching practice:

> Administrators who will be hiring beginning science teachers should place them next to experienced teachers who support reform-based instruction in the school and who are supportive colleagues…close colleagues have an ongoing opportunity to challenge existing beliefs and support emerging inquiry practices. (Luft, 2009, p. 2381)

My research presents a deep description of how a teacher with a strong philosophical center provides an effective counterbalance to the pressures of standardized testing. Mentors for new teachers could emphasize the development of this center, in addition to the required emphasis on content delivery and classroom management. Both Mr. Brigham and Mr. Norton described how administrators and colleagues must stand in support of new teachers in their quest to develop their teaching praxis. Mr. Brigham expressed how important it is for the administrators to understand that new teachers need time, and a certain degree of leeway, in order to develop their teaching practice:

> New teachers tend to get awful, lousy assignments [course assignments]…there's so many things outside of their control. How open minded is their administrator to the idea that—this is a new teacher and needs some time to season. Inquiry-based methods definitely are an evolution on the part of the teacher.

Mr. Brigham underscored the important role a mentor or department chair plays in support of new teachers: "Support the teacher with regard to test scores when they come

back, at all costs." Mr. Norton recognized his own fatigue from trying to balance competing pressures on his teaching practice and wondered whether new teachers could survive on their own, with the time a progressive teaching practice requires of a veteran teacher:

> I have to think that through when I think about new teachers…what to recommend. Because early on people will do it [put in the extra time] because they want to be successful, and if you're suggesting they do it they will work on it. But after awhile, they can sit by themselves and realize, what have I created?

The stresses on new teachers are significant even without the pressure of high stakes testing. Understanding the unique pressure a new teacher feels to have his or her students perform well on standardized tests is important for administrators and school leaders who are concerned about teacher retention as well as progressive teaching practices. The administrator also plays a key role in supporting veteran teachers who experience accountability pressures, perhaps to a different degree, but no less significantly.

Value of administrative support. Both teachers in my study describe the positive influence of having a supportive administration in their pursuit to stay true to an experiential praxis. In the case of Mr. Brigham, he contrasted his experience with school administration in two different schools. He described the near continuous battles he fought in his first school to push back on administrative requests to conform to accountability demands. Mr. Brigham's students' test scores were consistently high, so he was protected from extreme scrutiny from the school's administration; however he still described the need to push back on a regular basis. This is juxtaposed with how he described the principal in his new school:

> I was hired, in part, and charged by the principal with doing a couple of things. One, driving the department toward inquiry-based instruction. So I have, I believe, boundless support from the principal. That wasn't true at my old school, so I was confident that I could survive…even without internal support. I feel very supported here by the principal.

The support of the principal frees up Mr. Brigham to engage in other things besides battles about test scores, for example. At the time of this writing, Mr. Brigham received a $175,000 grant that will, in part, support his work towards infusing his department with inquiry-based instruction. He described how much more free he feels in his new school and I would argue that this freedom is what opened the door to opportunities like this latest grant award. In Mr. Brigham's words: "All of the grants we're writing now are really bent in that direction…to acquire the specific equipment needed for inquiry-based instruction. I feel more supported here than I've felt anywhere by a long shot."

In the case of Mr. Norton, he experienced the freedom to pursue an experiential praxis in a paradoxical way. As described in chapter four, he described more profound pressure from accountability demands than did Mr. Brigham. However, Mr. Norton also described having tremendous implicit support for implementing an experiential praxis through his principal as well as by the very nature of his school context, an early college design charged to explore innovative teaching. These seemingly incompatible demands caused frustration and fatigue for Mr. Norton. I came to understand Mr. Norton's fatigue as stemming from his sense of loss of control over professional decisions for his classroom due to accountability pressures. This inconsistent message about one's professional status in the classroom is characterized in the research as a tension between

professionalism and standardization (Wills and Sandholtz, 2009). Wills and Sandholtz (2009) describe a shift from professionalism toward what they have coined, "constrained professionalism." They use this term in instances when administrators explicitly reject standardization but teachers continue to experience the reality of constraints to curricular decisions and classroom autonomy due to accountability demands. I characterize Mr. Norton as experiencing just this sort of constrained professionalism in his context. In his situation, Mr. Norton described an administration in support of innovative teaching but also reported his school's conflicting emphasis on test scores as well. Wills and Sandholtz (2009) describe the shifting role of school administration under the pressures of accountability: "…In a climate of test-based accountability, administrators increasingly are shifting toward standardized approaches that increase hierarchical control and lessen teachers' authority over curriculum and instruction in their classrooms" (p. 1107).

In addition to teachers, school administrators are influenced by the pressures of accountability demands as well. This is true even in the case of Eastside, a school explicitly grounded in an innovative philosophy. Mr. Norton's case illustrates the important role that administrators can play in supporting teachers to continue to maintain professional autonomy over curricular and classroom decisions. While Mr. Norton described feeling supported by his principal, he still reported feeling stress from feeling conflicting priorities as a teacher. Mr. Brigham and Mr. Norton both receive support from the administration through their principals' willingness to be flexible in their promotion of accountability. These principals were open to multiple and diverse ways for teachers to be accountable for addressing standards. This was in direct support of the professionalism

of these teachers and also helped to alleviate some of the fatigue described by both of these teachers.

Reflections on the Research Process

An expanded view of exemplary teaching.

> If only I kept workbooks and made schemes and taught like other teachers I should have the confidence of numbers. It's the payment, the price of walking alone. If you saw the reading scheme I have been making the last few days you'd know why I speak of walking alone. Yet I must present it. I've got to do what I believe. And I believe in all I do. It's this price one continually pays for stepping out of line…But I must do what I believe in or nothing at all. (Ashton-Warner, 1963, p. 198)

Sylvia Ashton Warner's reflections on teaching Maori children in New Zealand, nearly half a century ago, made a strong impression on me when I was an undergraduate student interested in working with youth. In her book, *Teacher*, Ashton-Warner describes her unique approach to teaching as *organic* and vividly describes active and lively classrooms with the students' interests at the heart of the curriculum. Reading about Ashton-Warner's approach to teaching sparked my own journey of exploration into experiential teaching and a lifelong quest for exemplary teaching models.

My first career out of college as an instructor with Outward Bound thrust me into an organization with an explicit experiential framework claiming roots from John Dewey's educational philosophy and inspiration from Kurt Hahn's original goals for innovative schooling. "…Kurt Hahn (1886 – 1974) was one of the most influential educators of the 20th century. His passion for developing the character and morality of

youth led him to start a number of innovative educational programs, including Outward Bound" (Pace, 2009, p. 17) As I describe in Chapter One, the incredible growth, both personal and academic, that I saw in my students while working at Outward Bound led me to pursue classroom teaching. At Outward Bound I was privileged to work with some of the most passionately engaged teachers I have witnessed to date. These models provided me with inspiration for my own teaching as I entered a more traditional teaching career via an innovative program at the Harvard School of Education.

In graduate school, my exploration into exemplary teaching was further enlivened and expanded through introductions to thoughtful progressive educators with inspiring visions for schools including Eleanor Duckworth, Ted Sizer and Deborah Meier. At that time, Deborah Meier had just moved to Boston after tremendous success founding and running Central Park East, an innovative secondary school in East Harlem. Her insistence on viewing children holistically and with deemphasizing standardized measurements of student achievement was influential to my developing understanding of what comprises exemplary teaching:

> I discovered early on that standardized tests are the most deceptive of instruments which hide rather than expose the intelligence and capabilities of children with societal disadvantages. Through careful and well-documented efforts, I learned that the kids I taught often gave smarter and more well thought-out "wrong" responses to short-answer and multiple-choice questions than their middle class White peers. (Meier, 2009, p. 9)

My own introduction to classroom teaching during this time, at a large urban school in Boston, highlighted many of the concerns that inspired Meier's founding of innovative

secondary schools in both Boston and New York City. All of these formative influences inspired my decision to embark on this research and ultimately led me to the two exemplary teachers who were the central focus of my study.

My research with Mr. Norton and Mr. Brigham deepened and broadened my understanding of transformative teaching and led me to a more clear definition of what comprises exemplary teaching. Both of the teachers in my study are exemplary models for teaching. Their praxis, understood through extensive observation, their own voices, their students' voices and an examination of classroom documents is exemplary in its ability to fully engage students while effectively promoting student achievement. Understanding these teachers' struggles to remain true to their beliefs about teaching and learning provides an authentic view of the complexity of implementing a progressive practice within a traditional context. Hearing their students talk about their experiences in classrooms that challenge them to higher levels of achievement and help them develop confidence about their abilities was inspirational. The atmosphere I observed in these two classrooms, one of mutual respect and alive with possibility, encouraged me to maintain my belief that this type of teaching is transformative for students. Both teachers described their teaching style as uniquely their own and not something easily packaged into a model necessarily. Mr. Brigham described his praxis this way:

> Do I believe it's repeatable and can be replicated? Yeah, I absolutely do. Do I think you have to have before and after school? No, I don't. You can find other ways to differentiate the instruction and capture this student or that student…My whole system, right off the page? Probably not, but it's got a lot of me in it. Could

> it be massaged by anyone who is motivated to massage it and change it? I think so. I hope so.

Even with the shared sentiment that their teaching practices cannot be summed up into neatly packaged models, Mr. Norton and Mr. Brigham clearly have specific practices that are exemplary and worthy of replication. My study provided a rich description of these practices and revealed specific factors that support and challenge their experiential teaching practice. Understanding these factors is of value to teachers, administrators and policy-makers who value progressive teaching and also live within a context of accountability. My own personal search for exemplary teaching models was deeply enriched by this research. I continue my journey inspired by a vision of transformative teaching that I know is a realistic possibility for all students to experience, even in traditional settings within an era of high-stakes accountability.

However, there is a significant toll on these two teachers to continue to teach in this manner. My research clearly uncovers the fatigue that accompanies the choice to engage in an experiential praxis given other pressures to conform to more standardized approaches. It is critical that administrators and policy makers find ways to stand in support of progressive teaching practices not only in word but in deed. These teachers identify the significant support administrators and other school leaders can offer through acting as a shield against high-stakes accountability pressures.

My unique perspective. **"**The interview is an inter-subjective enterprise of two persons talking about common themes of interest. The interviewer does not merely collect statements like gathering small stones on a beach" (Kvale & Brinkmann, 2009, p. 192). Instead Kvale and Brinkmann (2009) encourage researchers to understand

themselves as co-authors rather than "collectors" of data. "There is a tendency to take the results of the social interaction…as something given, forgetting the original discourse and the social co-construction of the final outcomes" (Kvale & Brinkmann, 2009, p. 193). Throughout my research gathering and data analysis processes, I attempted to maintain the perspective that I was co-constructing the ultimate description of these two teachers' praxis. Through a triangulation approach of using interviews, classroom observation and an examination of classroom documents, I sought to provide an accurate and thick description of these two teachers' teaching practice. I believe that these three forms of data offered a rich picture of the teaching and learning that went on in these classrooms over an eight month period. However, as Kvale and Brinkmann describe, my unique influence, as the researcher, on the description (both in the collection of data as well as in the analysis of data) cannot be denied. This influence occurs perhaps obviously in the interpretation I ultimately made of the data but more subtly and equally profoundly through things like my choice to follow certain lines of thought within an interview or my choice to observe one group of students over another within a class period.

I describe in Chapter One how my understanding of experiential education is distinctively formed by my early teaching experiences. This background influences my thinking about experiential praxis and thus influenced the type of questions I asked, the choices of what I paid attention to during observations as well as what documents I selected as part of my data set. Thus, I consider the conclusions I assert in Chapter Four as interpretations of two teachers' practices that are exclusively my own. I am grateful to the two teachers of this study who offered me open access to their classrooms and to their thoughts, beliefs and aspirations about teaching and learning. While I attempted to stay

true to their intent, through my interpretations, I realize that ultimately I am able to offer a view of their teaching worlds only through my unique lens.

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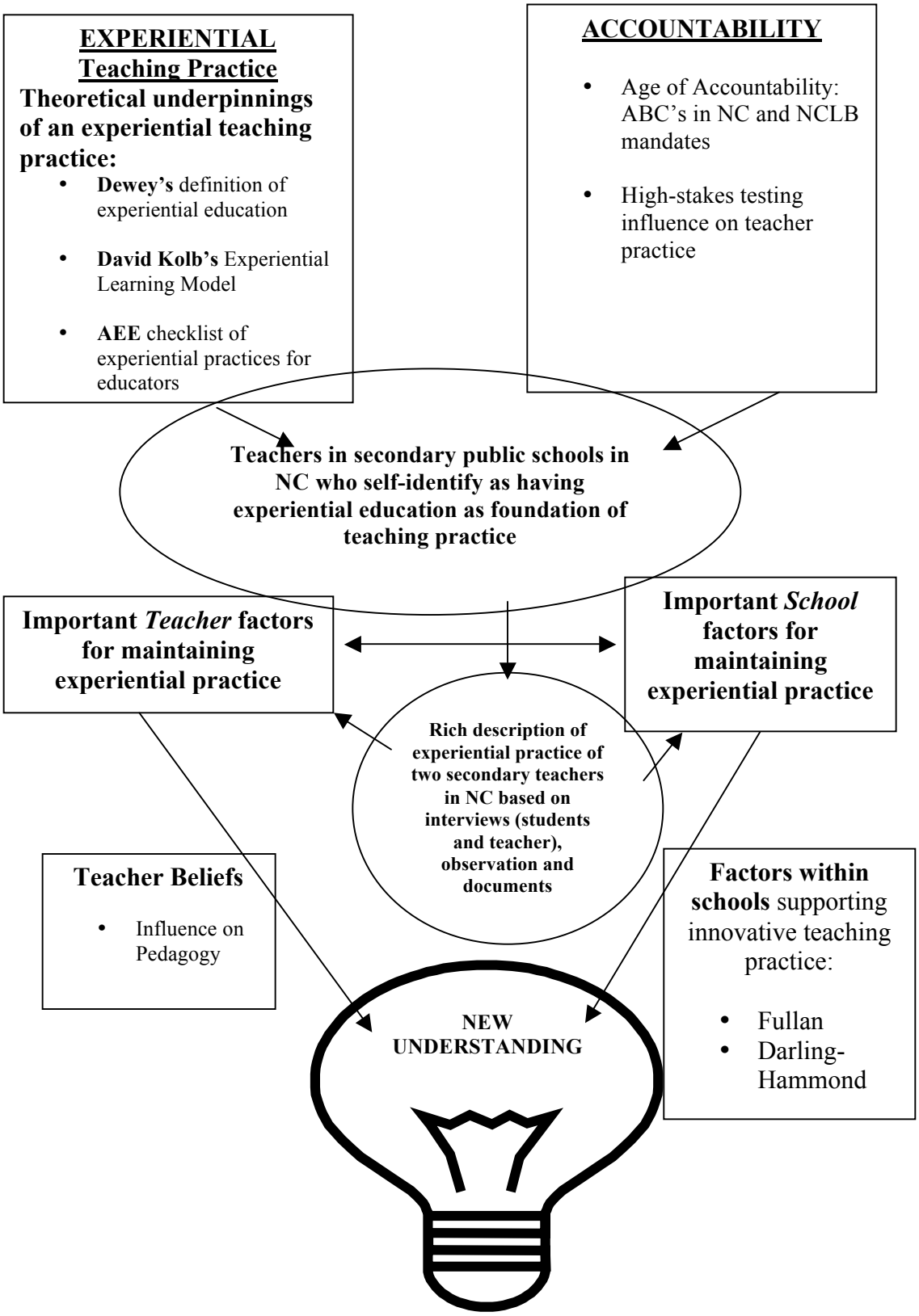
APPENDICES

APPENDIX A: Conceptual Framework for Study



APPENDIX B: Teacher Consent Form and Addendum to Consent Form

The present study in which you have been invited to participate is intended to explore the teaching practices of secondary teachers in EOC tested subjects in North Carolina. By participating in this study, you provide important information about your teaching practice. The information obtained from this study will be compiled and may be used as part of a doctoral dissertation on teaching practices in secondary tested subjects. As a participant in this study, you agree to being interviewed off-site from your school (up to four times for one-hour each interview), to be observed in your classroom up to ten times over the course of the year, and to provide teaching documents to the researcher to copy and keep.

Your participation in the study is completely voluntary, and you may withdraw from the study at any time, choose not to answer interview questions that you do not wish to answer, and choose not to provide teaching documents that you do not want to share. There are no known risks to your participation in this research study. You will be provided with the summary of the findings upon completion of the study. The information you provide as part of this study is confidential. Your name will not be attached to your responses when data is reported. Your school or your name will not be used in the published reporting of data from this study.

If you have any questions or concerns regarding any aspect of the study, please contact doctoral student, Ms. Annie Jonas at 828-242-0518. You may also contact Ms. Jonas' dissertation chair, Dr. Mary Jean Ronan Herzog at mherzog@email.wcu.edu. If you have any ethical questions or concerns about this study, you may contact the Western Carolina University Institutional Review Board Chair at 828-227-7212.

By signing this consent form, you indicate your informed consent to participate in the study. You are signing this form with the full knowledge of the nature and purpose of the study. Data from this study will be kept confidential and will be stored in a locked cabinet in the researcher's home.

A copy of this form will be given to you for you to keep. Thank you for your willingness to participate.

Annie Jonas, Western Carolina University Graduate student

_____ _____

Signature Date

Addendum to Informed Consent

for Teachers in Study on Experiential Teaching Practices

The study on experiential teaching practices, for which you have already signed a consent form, has changed in scope since you granted your original consent. This addendum is to inform you of the nature of the changes to the study and to request your consent for participation in this study, given these changes. The original consent form provides details about the study with regard to interviews, observations and teaching documents. The changes to the study are all related to the researcher having an increased role in your classroom including spending more time in the classroom observing and interviewing you, the teacher. The other change is that the researcher will also focus on the student perspective on the topic of experiential teaching. This change in data collection will include the researcher interviewing students one-on-one as well as in small groups during class time.

By signing this addendum to the original consent form, you indicate your informed consent to participate in the study with the changes listed above. You are signing this form with the full knowledge of the nature and purpose of the study. If you have any questions or concerns regarding any aspect of the study, you may contact me, Ms. Annie Jonas at 828-242-0518. Or you may also contact Ms. Jonas' dissertation chair, Dr. Mary Jean Ronan Herzog at mherzog@email.wcu.edu. If you have any ethical questions or concerns about this study, you may contact the Western Carolina University Institutional Review Board Chair at 828-227-7212. Data from this study will be kept confidential and will be stored in a locked cabinet in the researcher's home.

A copy of this form will be given to you for you to keep. Thank you for your willingness to participate.

Sincerely,

Annie Jonas, Western Carolina University Graduate Student

_____

Name

_____ _____

Signature Date

APPENDIX C: Assent Form for Students

My name is Annie Jonas. I am a doctoral student at Western Carolina University and am working on my dissertation research. My dissertation is focused on exploring the teaching practices of high school teachers. I am conducting my research in high school classrooms in Buncombe County and will be in your classroom once or twice a week for the remainder of this semester and in the spring semester.

My research includes observing in the classroom, interviewing your teacher, interviewing students and reviewing student work. My research and writing is focused on learning about teaching practices but the perspective of students with regard to teachers and teaching provides important information to my study.

Your participation in the study is *completely voluntary* and if you choose to not participate, there are no consequences to your grade or standing within the class. If you do choose to participate in this study, you may elect to not to participate in an interview with me or choose not to answer interview questions that you do not wish to answer. You may also choose to not provide classroom documents that you do not want to share with me. There are no known risks to your participation in this research study. The information you provide, as part of this study, is confidential. Your name will not be attached to responses when data is reported and the school's name, teacher's name and your name will not be used in the published reporting of data from this study. Data collected in this study will be kept confidential and will be stored in a locked cabinet in the researcher's home.

If you have any questions or concerns regarding any aspect of the study, please contact me, Ms. Annie Jonas at 828-242-0518. You may also contact my dissertation

chair, Dr. Mary Jean Ronan Herzog at mherzog@email.wcu.edu. If you have any ethical questions or concerns about this study, you may contact the Western Carolina University Institutional Review Board Chair at 828-227-7212.

By signing this assent form, you indicate your willingness to participate in the study. You are signing this form with the full knowledge of the nature and purpose of the study. Please review and check one box for the two assent items listed below.

1) I do □ or do not □ give my permission to the investigator to audiotape interviews with me.

2) I do □ or do not □ give my permission to the investigator to review my written classroom work or written homework.

Date: _____

Student's Name:_____

Print

_____

Signature

APPENDIX D: Consent Form for Parents

My name is Annie Jonas. I am a doctoral student at Western Carolina University and am working on my dissertation research. My dissertation is focused on exploring the teaching practices of high school teachers. I am conducting my research in high school classrooms in Buncombe County and will be in your child's classroom once or twice a week for the remainder of this semester and also in the spring semester.

My research includes observing in the classroom, interviewing your child's teacher, interviewing students and reviewing student work. My research and writing is focused on learning about teaching practices but the perspective of students with regard to teachers and teaching provides important information to my study.

Your child's participation in the study is *completely voluntary* and if you choose to not consent to your child's participation, there are no consequences for your child's grade or standing within the class. If you do choose to allow your child to participate in this study, he or she may elect to not to participate in an interview with the researcher or choose to not answer interview questions that he or she does not wish to answer. A child may also choose to not provide classroom documents that that he or she does not want to share with the researcher. There are no known risks to your child's participation in this research study. The information your child provides, as part of this study, is confidential. His or her name will not be attached to responses when data is reported and the school's name, teacher's name and the student's name will not be used in the published reporting of data from this study. Data collected in this study will be kept confidential and will be stored in a locked cabinet in the researcher's home.

If you have any questions or concerns regarding any aspect of the study, please contact me, Ms. Annie Jonas at 828-242-0518. You may also contact my dissertation chair, Dr. Mary Jean Ronan Herzog at mherzog@email.wcu.edu. If you have any ethical questions or concerns about this study, you may contact the Western Carolina University Institutional Review Board Chair at 828-227-7212.

By signing this consent form, you indicate your informed consent for your child, as a minor, to participate in the study. You are signing this form with the full knowledge of the nature and purpose of the study. Please review and check one box for the two consent items listed below.

1) I do □ or do not □ give my permission to the investigator to audiotape interviews with my child.

2) I do □ or do not □ give my permission to the investigator to review my child's written classroom work or written homework.

Date: _____

Child's Name:

_____

Print

_____

Signature

Parent's Name: _____

Print

_____

Signature

APPENDIX E: Consent Form for Students Aged 18 or Older

My name is Annie Jonas. I am a doctoral student at Western Carolina University and am working on my dissertation research. My dissertation is focused on exploring the teaching practices of high school teachers. I am conducting my research in high school classrooms in Buncombe County and will be in your classroom once or twice a week for the remainder of this semester and also in the spring semester.

My research includes observing in the classroom, interviewing your teacher, interviewing students and reviewing student work. My research and writing is focused on learning about teaching practices but the perspective of students with regard to teachers and teaching provides important information to my study.

Your participation in the study is *completely voluntary* and if you choose to not participate, there are no consequences to your grade or standing within the class. If you do choose to participate in this study, you may elect to not to participate in an interview with me or choose not to answer interview questions that you do not wish to answer. You may also choose to not provide classroom documents that you do not want to share with me. There are no known risks to your participation in this research study. The information you provide, as part of this study, is confidential. Your name will not be attached to responses when data is reported and the school's name, teacher's name and your name will not be used in the published reporting of data from this study. Data collected in this study will be kept confidential and will be stored in a locked cabinet in the researcher's home.

If you have any questions or concerns regarding any aspect of the study, please contact me, Ms. Annie Jonas at 828-242-0518. You may also contact my dissertation

chair, Dr. Mary Jean Ronan Herzog at mherzog@email.wcu.edu. If you have any ethical questions or concerns about this study, you may contact the Western Carolina University Institutional Review Board Chair at 828-227-7212.

By signing this consent form, you indicate your informed consent to participate in the study. You are signing this form with the full knowledge of the nature and purpose of the study. Please review and check one box for the two consent items listed below.

1) I do □ or do not □ give my permission to the investigator to audiotape interviews with me.

2) I do □ or do not □ give my permission to the investigator to review my written classroom work or written homework.

Date: _____

Student's Name:_____

Print

_____

Signature

APPENDIX F: General Interview Guideline for Teachers

1. How do you understand the term experiential education?

2. In your view what are the key elements of experiential education?

3. What would you regard as the key factors in implementing an experiential learning process in your classroom?

4. How would you view the role of the teacher/facilitator/tutor in an experiential education program?

5. What is your view of the role of the learner in the experiential learning process?

6. Describe the most important aspects of your teaching practice? What does it look like? How do you plan for it? What role do you take?

7. How is your teaching practice compatible with the demands of high stakes testing? Or not compatible?

8. How have demands for accountability affected the way you view your teaching? What has changed about your practice as a result of accountability demands?

9. What or who influenced your approach to teaching? What or who currently supports your teaching practice?

10. What barriers do you see or experience to maintaining this approach to teaching?

APPENDIX G: General Interview Guideline for Students

1. How would you describe your teacher's approach to teaching?

2. How would you describe your role as a student in this teacher's classroom?

3. Are you asked to reflect on what you are learning in this classroom? If so, describe how you are asked to reflect on your learning.

4. Are you asked to take responsibility for your own learning in this classroom? Describe in what ways you are asked to do this either explicitly or implicitly.

5. How would you describe the tasks or assignments you are asked to do in your classroom on a daily basis?

6. Do the tasks you are asked to do connect to other classes you are taking? Do they connect to your life outside of school? In what ways do they connect to other classes or other aspects of your life? In what ways does the teacher help you to make these connections?

7) Do you always know what the outcome will be when you are given an assignment in this class? Are you offered flexibility in finding your own outcome? If so, how do you know that there is flexibility available to you?

8) What sort of consequences do you experience for not succeeding or completing a task or assignment in this class?

9) Are you asked to take an active role in your learning in this class? If so, how are you asked to do this?

10) Do you think this class is helping you prepare for success on end of course tests or on other standardized tests (AP or SAT)? In what ways is this class helping you to do well at these types of tests? In what ways is this class not helping you to do well on these types of tests?

APPENDIX H: Excerpts from Transcriptions of Interviews with Teachers

Excerpt from Mr. Brigham Interview on September 21, 2010:

Jonas: Yeah. That was what I was going to ask you—if you felt like you learned experientially in a formal setting.

Brigham: I did not. I remember my high school—my high school biology experience was a little more experiential, but my high school physic experience--. I remember one lab in high school physics. One lab I can't fathom that. It's difficult to process that notion. I had the same teacher for chemistry and I don't remember doing a single chemistry lab.

Jonas: Oh, that's scary.

Brigham: Not one. So I knew—and I knew how really ill prepared I was when I had college chemistry and physics. I fell just so far behind. I suppose somewhere maybe in the back of my head I subconsciously processed it. That is not what I think even a high school level experience should be like.

Jonas: Right. Well, I'll move into pulling apart experiential education a little bit. What do you see as the key elements of experiential education or inquiry-based education you mentioned?

Brigham: If I were to classify myself, I would say I was a guided inquiry-based teacher. I love the idea of true inquiry instruction, but about eight years or so when inquiry-based instruction was finally hitting the mainstream, you could go to the North Carolina Science Teachers Association Conference and find a third of the presentations were on inquiry-based instruction. I already knew enough about it to know that it wasn't going to be easy to put into the classroom the way inquiry-based

instruction was actually written. That was: student generated questions, student generated experimental procedure, student generated results and discussion. You know, a true student generated question, everybody in the class could be on a slightly different question. It might take you six weeks to get through some real live experiments. About eight years ago, I really started to focus on—how do I take all that the research is starting to show us what inquiry-based instruction is and still teach the standard course of study and prepare my students for the evil, evil thing called the EOC. For the last two years it's gone away but for the first 17, 18 years I taught, I faced it. So in all of that, I came down on the side of—you know the sign up on there on the bulletin board, I am a pogilite. I put it up there so students ask. I want them to understand what I'm trying to do—I want them to see there's a philosophy at work here, there's a strategy. I liked POGIL, process oriented and guided inquiry learning. The concept which is primarily in chemistry but you can take the idea of process oriented inquiry—guided inquiry—and apply it across the board. So, I guess that's primarily where I stand as a guided-inquiry instructor. Back to your question what's most important about it is—I love the idea of presenting today's problem to the students and saying solve it in whatever way you can. By the time they've been in here half a semester I can just say, you know where all the equipment is, use what you need. I think it really puts the onus of thinking squarely in the lap of the student. That's what I want most. The sign outside the door—have you ever read it?

Jonas: I just read it this morning, yeah.

Brigham: We talk a lot about this room being a place of deeper thinking, than concern for memorization and grades. It's named the thinkatorium for the obvious reasons. That's what I want going on in here besides memorization. Opportunities without specific

procedural instructions—step one through step two. I think that's the—that's primarily the way I want the lab activities to go. Now what replaces—along the same lines—what I would normally consider to be lecture style activities, is more of a discussion. Just try and pose the questions and start the discussion moving. By halfway through the semester, most of my classes will be pretty good at it, where they stop looking at me. I don't want them to look at me. I want them to reflect on us as kind of learning group and be just as likely to turn to Johnny and say, wait a second well, that would mean—and let it take off from there. I guess that's what I see is most important, discussion-based kind of background information gathering. I'm avoiding saying, delivery. I don't believe in information delivery. Sometimes you have to. Sometimes there's just new material and they don't have the pieces to move with you. I'd say that's what I find most important. Discussions and labs where you can't survive it without deciding some stuff on your own. The more the better. But some labs are very intricate and complicated, and for example, in chemistry, dangerous and if they get that way the instructions get more direct.

Jonas: Well that leads me to asking you how you view the role of the teacher in experiential learning/inquiry-based classroom. What's your role?

Brigham: Yeah. I read years ago a paper that I really liked that described teachers as coaches. It's become a common kind of idea now. I've always liked the idea of us coaching them into intellectual fitness. I don't mean that to sound too coach-like because I'm not really a coach. The other thing that I think is the primary role of the teacher is to ask questions. I think the emphasis on questioning is so under-emphasized in teacher prep courses. I think every teacher ought to take a course or two in Socratic questioning

strategies, discovery-style questioning. Not just, I want you to think about this. Here's a tough question. It's like a more probing, well, where are you? Where's your thinking here? Can I help in some way? Are you tangled up here? Can we help sort it out? Can I help sort it out? I think primarily as a questioner. The real role—at least in the experiential setting—by far as a questioner. Which is really hard for a lot of teachers. We've got young teacher here who asked me a lot of questions last year—this is the start of my third year. He wanted to try some of the ways that I teach. He is experiencing the same thing that so many young teachers do. Where you have to kind of give up the—I am the authority; I'm here to tell you.

Excerpt from Norton Interview, February 16, 2011:

Jonas: From the time I've observed, I would say that you're very experiential, based on my understanding of experiential methodology. Do you ever find that there's an instance or a concept or a standard that you just can't teach it experientially? It's got to be direct instruction. What would those be?

Norton: Sometimes I can teach it experientially, but for some students they need more repetition. They need a little bit of practice. They need some—I won't say drill and kill type stuff—but they need some practice at it, so it becomes a part of their thinking. When they see it the next time they think, oh yeah, I know what to do. They begin to be more encouraged; they become more empowered that I can do these kinds of problems. Whereas before they might think, Wow, I can do this. I can explain it; I can understand it. When they see a word problem on a standardized test they think, that doesn't connect for them. They're not used to the words. Some of the folks have trouble with just the words. They can understand concepts; they can use some of the vocabulary. That's their biggest

challenge; they get stuck when they're reading a text. They may be using different kinds of language than they're used to or something. They may know some of the key words. I find that with some students who are English as a Second Language I'm having to work a little bit more there to make sure they understand, words that I would normally think they would know; I'm finding not so.

Jonas: How do you go about that practice? What are the things you do?

Norton: We do one-on-ones often, during the day or after school or academic support time. During house lab, during lunch time there's time to get them to come and get some extra explanations on it. Also, when they're reading try to give them some reading strategies that they'll know what do be looking for. I also try to point out the key vocabulary words, try to explain those. Handle it a little bit different. Sometimes I'll give them as they're reading, something they can look for in their

reading, try to explain that. All those things take extra time. That's the balancing act between trying to work with those literacy skills as well as try to make it an inquiry-based experience. Maybe when I grow up I'll get better and better at actually trying to pull those two together as well. During the inquiry it's a part of learning, understanding those vocabulary words as well.

Jonas: That's good. I'm going to go down a little different angle now. One thing I feel like I've observed and I've heard your students say is that the onus is kind of on them to be successful. However, it appears that people don't fail in your class. You don't think of a student as a failure ever. I don't know if I'm putting words in your mouth, or that's a new—. Talk to me about that. Do you ever find that there is a student who there's nothing you can do as a teacher to help them?

Norton: There's a student or two; I have names in my mind that do not contribute much to their own learning. You try different things; you have parent-teacher conferences. You pull all the teachers together, counselor, administrator, parent and child together. You all try to figure out what would be helpful. Sometimes you'll see changes; sometimes you don't. There's long ingrained habit patterns that people have formed. It's hard. I try not to let my energy drained off from a person who's not trying hard so much that I forget the people who are trying. I have made conscious efforts again and again with folks to say, this is what I need to see from you. One of the things I'm trying right now, our school is trying right now is outcomes-based assessment. We're trying not so much to look at grades, 80, 90, 70, 60, 50 whatever. What we're looking at literally, these are the outcomes we expect you to get. They're based on standard course of study as well. There may be just a few; some people say as few as four in a six-week period. I'm still doing about seven outcomes in a six-week period. What you're looking for is a variety of different evidences that indicates this person understands this concept and can apply it. When that happens; you have two or three different pieces of evidence. I like to have a high stakes one in there, a test type deal along with labs and writing and different things. It can be as simple as I see a student explaining a concept to somebody else can be evidence as well, especially if that other person gets it. Then they have a chance to demonstrate that they are high performing in that area. I'm just beginning in that area. Our math team's going to meet next week; we're going to try to help one another fine tune that to get it better. What we're finding is, it leads us to conversations, even with the students I could have named a moment ago that aren't trying. The other day I found myself engaged in an actual, in this case, math conversation. Also doing it in science.

There'll be opportunities for me to clarify for students what they understand and what they don't understand. It's a way to affirm what they do get, even if it's a little. It's not saying you're not doing the work or whatever, you're just not showing me the evidence that you understand this concept. Here's a way you can engage with that. Maybe a paper form; it may be a lab. Maybe, here's some wires, show me how to put a parallel circuit together. Go ahead. If you don't, let me explain to you how and so forth. It's engaging in a little more dialogue; yes we have to convert it back to grades and we have a percentage. That's

part of what we're working on too, doing that in a fair and equitable way. It's usually a percentage of outcomes that are mastered to get a certain grade.

APPENDIX I: Student Responses to Brainstorm about Effective Teachers

- Pays attention to how students learn
- Interactive and fun for students
- Teacher available for help
- Teacher should really like the kids (have conversations, don't stereotype)
- Teacher moves around room, doesn't sit
- Have control of the classroom
- Sense of humor (livens up classroom, learning should be fun)
- Personalized connections with the students (get to know the students personally)
- Balance of fun/funny but also assertive
- Teachers should care about you as student – to encourage a challenge
- Maintain a positive perspective (no matter what grade the student has in the class)
- Variety of activities – keep it interesting and hands-on
- Reasonable homework expectations – recognize that students have other life
- Reach out to students who have a bad grade – grades don't define a student
- Make a safe place for mistakes
- Accept that teacher can make mistakes
- Teacher needs to be organized
- Teachers should ask for student opinion/input during the year
- Be willing to review when needed
- Teacher knows subject and is willing to review material
- Teachers should make sure that students understand before moving ahead
- Introduce outside sources to help students learn

- Reference real things that students understand
- Equal treatment of all students (don't show favors)
- Allow bathroom breaks and time to breathe
- Set clear expectations
- Don't intimidate (open attitude from teacher)
- Take the time to answer student questions
- Talk in a way that students understand
- Use appropriate volume for talking
- Don't talk to other teachers about students
- Respect students

APPENDIX J: Ives and Obenchain Anecdotal Record of Experiential Events

Classroom: _____ Observer: _____ Date: _____

Start Time	Comments	End Time	Student	
			☐ St. Dir. ☐ Real Life ☐ Crit. Ref.	☐ Example ☐ Opportunity
			☐ St. Dir. ☐ Real Life ☐ Crit. Ref.	☐ Example ☐ Opportunity
			☐ St. Dir. ☐ Real Life ☐ Crit. Ref.	☐ Example ☐ Opportunity
			☐ St. Dir. ☐ Real Life ☐ Crit. Ref.	☐ Example ☐ Opportunity
			☐ St. Dir. ☐ Real Life ☐ Crit. Ref.	☐ Example ☐ Opportunity

Student- Directed: student involvement in decision- making on course content, experiences, assessment and classroom procedures

Real- Life Connections: student action on, or recognition that they could act on, connections between content and applications outside the classroom

Critical Reflection: student thinking at the Evaluation level of Bloom's Taxonomy applied to course content

APPENDIX K: Example of Mr. Norton Lesson Plan

1st & 2nd Block [redacted] - **Integrated Math and Physical Science** - [redacted]

IMAPS1 Lesson: Patterns In Data

Math SCOS:

Science SCOS: (Exploring Distributions)

Essential Question:

Why, how, and when do you use mean, median, and mode?

Learning Outcomes:

(1) Compute and interpret the mean, median, and mode (from a list and frequency table).

(2) Estimate the mean and median from a histogram

Key Vocabulary Words / Equations:

mean median mode

$x = \frac{x_1 + x_2 + \ldots + x_n}{n}$ or $\bar{x} = \frac{\Sigma x}{n}$

Real World / Community Connections:

Understanding Data / Not Misrepresenting Data

Technology / Text Resources:

Graphing Calculator

CPMP Tools

Presenter (overhead)

4MAT / Learning Styles

Why?	What?	How?	If?
95% of all school bus accidents involve yellow buses ???	Measures of Center (Input) Variety	By Hand Calc Computer Visual	Project Applications

Differentiation: Content	Student Choices: Product	Assessments: Process
Variety in presentations	Choice in which problems	Choice in how to present

On Friday [redacted] { (Schedules + AA vs AS)

Schedule:

8:30 / 10:00 — Mathercise Problem (Word Problem Solving Practice)

8:40 / 10:10 — HW Review. Begin with #2 p. 84 (10 volunteers) { Have 10 students stand in a line; then 10 fingers

8:45 / 10:15 — #3 Review p. 85-86
- a • Group 1
- #3b
- #4 • Group 2
- • Group 3 — #5 CPMP Tools Demo
- (5 min to prepare, 2 min to report)

9:00 / 10:30 —
- #6a • Group 4 — Calculator Demo
- 6b • Group 5

#7 All Class Discuss p. 86 (skip #8 a-d) & #8e { 1, 2, 3 → T = n · $\bar{x}$; 10, 11, 12 → T = n · $\bar{x}$ [Sum = #·mean]

Omit #9

9:15 / 10:45 — [#10 a-c in Small Groups; Calc → Histograms] (10d All Class)

STM-89 (see Notes Handout also)

9:30 / 11:00 — Graphic Organizer (15 mins)

If time, Revisit → Science Topic Newton's 2nd Law $F = ma$, $a = \frac{F}{m}$ "∝" (Use Airplane to Illustrate) Luggage Charge on Airlines — Mean? Median?

9:45 / 11:15

9:50 / 11:18 — HW (Agendas)

9:55 / 11:20 — CYU 89 Due Tues. A4 or A5 (p. 91-92), A7 (p. 93), C10 (p. 94) → Due Tues.

Science (Ch. 11 Vocab) → Mon. Quiz

Collaborative Group Work:
- Carousel
- Brainstorming
- Gallery Walk
- Jigsaw
- Pairs
- Triads
- Small Groups (4-6)

Write to Learn:
- Admit/Exit Passes
- Free Writes
- Journals
- Letters
- Low Stakes
- Summary Writing

Literacy Groups:
- Small Groups with specific roles
- Literature Circles
- Book Clubs

Questioning:
- Pre-Determined linking to text, content, world
- Use of selected student made questions
- Application of Bloom
- Use of questioning protocols

Scaffolding:
- Brainstorming
- Concept Maps
- Gallery Walk
- Graphic Organizers
- Visuals / Word Walls
- Thinking Maps
- Time Lines

Classroom Talk:
- Chalk Talk
- Debates
- Fish Bowl or Paideia
- Panel Discussions
- Role Playing
- Skits / Wagon Wheel
- Think Pair Share

APPENDIX L: Example of Mr. Brigham Lesson Plan

Unit: Rotational Mechanics
Sub-Unit or Sub-Subject:
Unit sequence Number: 15

Objectives (OUTCOMES):

- Understand that vectors which are both mag. and direc. can be constant in mag. and vary with direction
- Understand Centripetal Force and have some idea as to why it is said to point 'in'.
- Use the equations for Centripetal acceleration and force.
- Understand the basic concept of Rotational Inertia

Intro Lab or Demo:

Lecture Setup**:**

- Review VECTOR = BOTH MAG AND DIRECTION
- Review the difference between speed and velocity

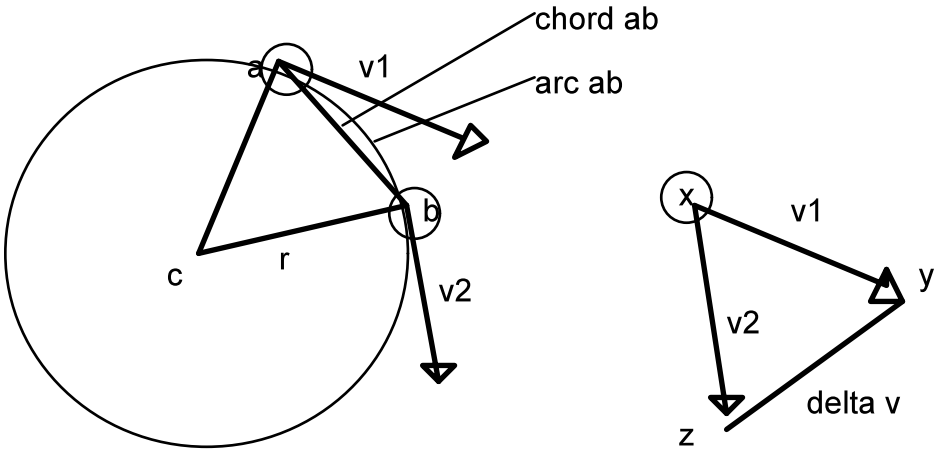
Lecture Ques and Keywords (what not to forget):

- A body moving in a circle at a constant SPEED is not moving at a constant velocity
  WHY?

- If a body which is moving in a circle at constant SPEED is released, which way will it go?

  DEMO for motion tangent to the circle!!

- So, if the body is experiencing a change in velocity (direction only) then is there acceleration?
  YES ... a = delta v / delta t



- the triangles abc is a similar triangle to yzx .... because the corresponding sides of the angles c and x are perpendicular (i.e. v1 is perpendicular to r and v2 is perpendicular to r)

SINCE THESE ARE SIMILAR TRIANGLES, (i.e. they have the same angles, and length of sides are proportionally equal)

$$\Delta v / v_{mag} = \text{Chord ab} / r$$

- <u>if</u> $d = v_{mag} \Delta t$ <u>and</u> $d = \text{chord ab}$

<u>then</u> $\Delta v / v_{mag} = v_{mag} \Delta t / r$

<u>Further, if</u> $a = \Delta v / \Delta t$

and rearranging $\Delta v / v_{mag} = v_{mag} \Delta t / r$
(mult both sides by
v_{mag} and divide both by Δt)
to be $\Delta v / \Delta t = v_{mag}^2 / r$

then $a_c = v_{mag}^2 / r$

- as the line ab gets very small, then Δv becomes more nearly perpendicular to v1 and v2 ..... which means, Δv becomes nearly parallels to r and pointing 'inward'.

- This defines <u>Centripetal!!!</u> (Centripetal = 'center seeking')

- Centripetal force $F_c = ma_c$
and this force is inward .... it holds a plane on the end of a string ..... holds you in a spinning

carnival ride ..... hold your car on a curve .....

- If we need a_c to find F_c then we must be able to find the speed (v_{mag}) of something is rotating .... this is often difficult to find ..... SO measure the time of 1 revolution and call it T_r

$v_{mag} = d / T_r$ Where d is the circumference of the circle = $2\pi r$

$v_{mag} = 2\pi r / T_r$

$a_c = v_{mag}^2 / r$ so $a_c = (2\pi r / T_r)^2 / r$

or $a_c = (4\pi^2 r^2 / T_r^2) / r$ r cancels the squared term of r^2

leaving $a_c = 4\pi^2 r / T_r^2$

- Try it!

Materials
- Multiple washers
- Scale to determine the mass of the washers
- Stop watches
- String to attach to washers
- Meter stick to measure the length of the string

- Rotational Inertia and the great race

DEMO'S
- Equal mass racers with there mass distributed differently
- The soup can mystery

- Finally, <u>THE ROTATING TIRE MYSTERY DEMO</u>!!!!!!!!

<u>ADD TWO DAYS OF ROTATIONAL MECH EQUATIONS AND PROB SET</u>

APPENDIX M: Process for Data Analysis